620

Contractors and Engineers

magazine of modern construction

SEPTEMBER
1955

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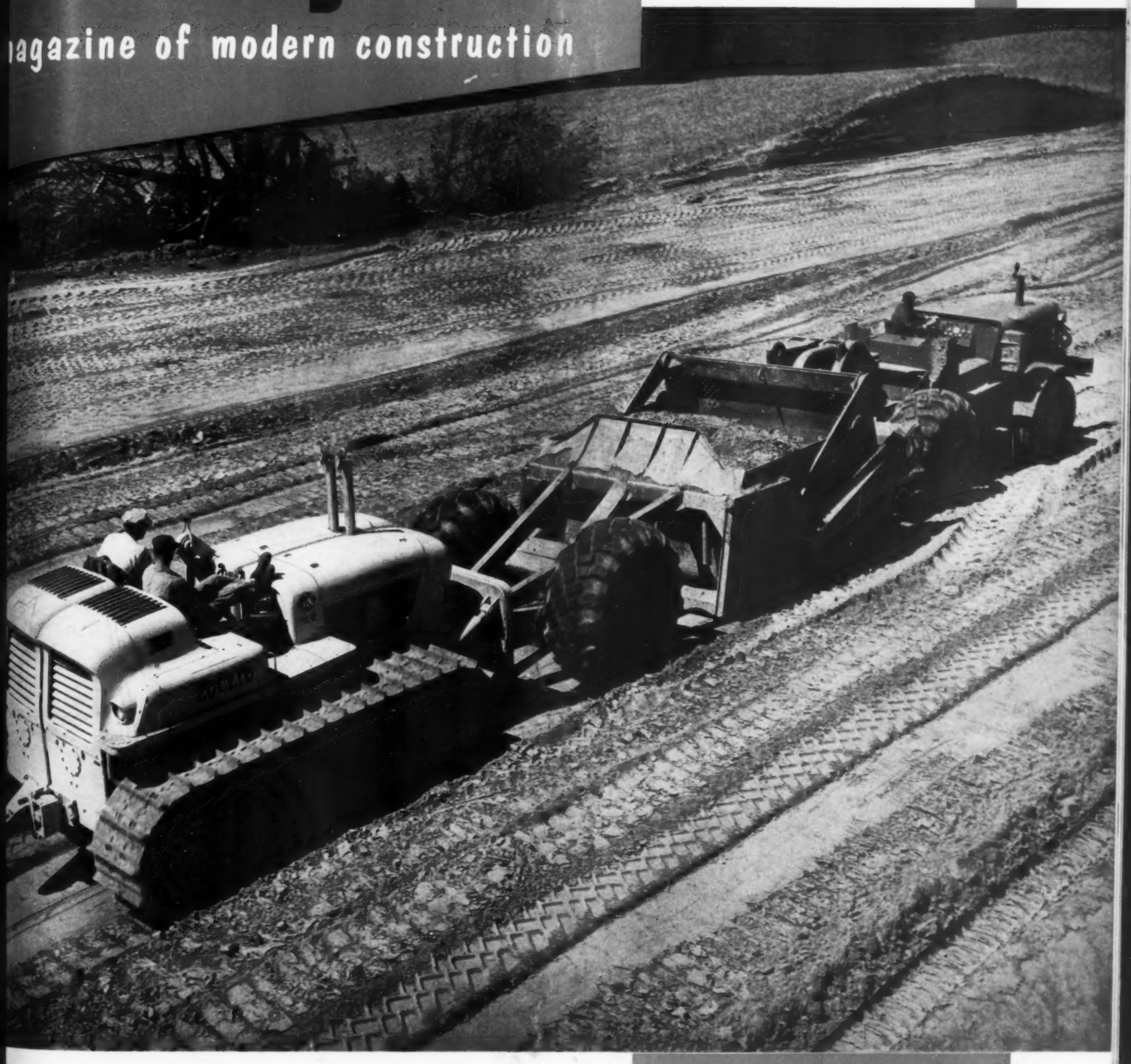

One of the first production models of the new Euclid TC-12 push-loads a Euclid 18-yard scraper in a silt cut on the approach road being built for the Wabash River Bridge near Mount Vernon, Ind. The tractor has twin GM diesel engines developing 380 horsepower. *Page* 6

Laying the top course of a 3-inch hot-mix Texaco Asphaltic Concrete surface on a divided highway in southern New Jersey.

This heavy-duty pavement puts emphasis on flexibility

The all-flexible pavement constructed on this heavily traveled New Jersey highway has an important advantage, which pays off in greater durability and lower upkeep. Thanks to its top-to-bottom flexibility, it maintains contact with the subgrade continuously and completely. Consequently it is never without the full support of the underlying soil.

The all-flexible design used for the highway in the photograph called for a waterbound macadam base. On other important traffic arteries, either hot-mix Texaco Asphaltic Concrete or Texaco Asphalt (penetration) Macadam has been employed as the base course, according to the volume and weight of traffic to be served.

Using Texaco Asphalt Cements, Cutback Asphalts and Slow-curing Asphaltic Oils, the road builder has a choice of many heavy-duty, intermediate and low-cost types of construction for streets, highways, airports, parking areas, etc. Helpful information concerning all of these types is supplied in two free booklets which can be obtained without obligation by writing our nearest office.

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3 inches of hot-mix Texaco Asphaltic Concrete, laid in two courses.

Base
4 inches of waterbound macadam

Sub-base
5 to 8 inches of gravel

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Contractors and Engineers
magazine of modern construction

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Acceptance under Section 34.64 P. L. & R. Authorized at Lancaster, Pa. Vol. 52 No. 9 $4 a year, 50 cents a copy in the United States and Canada. $7 a year in other countries.

Issued Monthly by

BUTTENHEIM-DIX PUBLISHING CORPORATION
470 Fourth Ave., New York 16, N. Y.
Myron MacLeod, E. G. Allen, Jr., Edgar M. Buttenheim, Don Daily
MURRAY HILL 5-9252

CHICAGO 6, Ill., 2329 Daily News Bldg. CENTRAL 6-2853
George S. Conover, Warner H. Robinson, Arthur B. Burgan

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EDITORIAL

The problem remains

Just before adjournment, the House of Representatives vote of 221 to 193 against the Dondero Bill—the highway bill approved by the Administration—and 292 to 123 against the Fallon Bill—the Democratic measure—effectively blocked passage of any highway legislation for this year. A number of reasons have been advanced for the failure of Congress to take positive action to secure more funds for a stepped-up highway program, but all of them seem insignificant in view of the importance of passing highway legislation. This is the bitterest part of the failure.

From the time the President proposed a $101 billion 10-year highway plan, attention has been focused not on the highway program itself and how to solve it, but upon side issues. No one disagreed with the Clay Committee report that highway needs have long been under-valued, that the road system should be enlarged to take care of 1975 traffic by 1965, that more limited-access roads of four, six, and even more lanes were needed to assist the country's economy and defense.

Instead, the Administration's plan to pay for more roads with bonds issued by a federal corporation and redeemable by gas and oil taxes was criticized as a means of by-passing the federal debt limit. This, and the rivalry as to which political party would get credit for passing a highway bill, were responsible for the number of substitute measures introduced in Congress.

Significantly, all of them,—including the Gore Bill, the Fallon Bill, the Dondero Bill, and Thompson Bill—were in substantial agreement concerning the need for better roads and for providing sufficient funds to improve the highway system. All differed as to financing arrangements, and one—the Fallon Bill, with its provision for increasing federal taxes on gas, diesel fuel, tires, trucks, and buses—ran into immediate opposition from lobbyists representing the trucking and petroleum industries.

We do not mean to minimize the importance of securing the best type of financing for a highway program. Nor do we mean lobbyists are out of order in protesting against tax increase when some of the $2.2 billion revenue from highway-use taxes is being diverted for other purposes, and when much of the money from the tax increases would go for secondary or little-used rural roads. These industries and the majority of auto drivers are willing, we feel, to back legislation and pay taxes for a system of interstate freeways and urban connections. We cannot blame congressmen for attempting to please the majority of their constitutents.

But it is unfortunate that action on such a vital bill—which everyone feels is necessary and which everyone is willing to pay for—has to be postponed because of differences of opinion as to financing, political machinations, and lobbyists.

Highway legislation has been blocked, but it has not been killed. The need for improved roads is so pressing that the issue will have to come before Congress again shortly. There is a dim possibility that a special fall session will be called to consider highway legislation, and it is even more probable that a new highway bill, embodying features of the Administration and Democratic bills, will be framed for the new session of Congress next year.

When Congress does meet to consider the road question again, it would do well to remember that the problem to be solved is not the impossible one of pleasing everybody, or of which party will be credited with passage of a highway bill, or of how the bill is to be paid.

We are paying for roads right now in the most uneconomical way possible. We are paying to maintain bad roads—millions of miles of road without high-type paving, 85 per cent of them obsolete, many of them designed to handle 1935 traffic. We are paying for them in higher insurance rates, in motorists killed and injured on highways unable to handle huge volumes of fast-moving traffic, in money for extra gas and oil and tires, and in time lost on roads paralyzed by bumper-to-bumper traffic. The price far exceeds any amount we pay for new roads through bond financing or taxation.

NEWS AND VIEWS

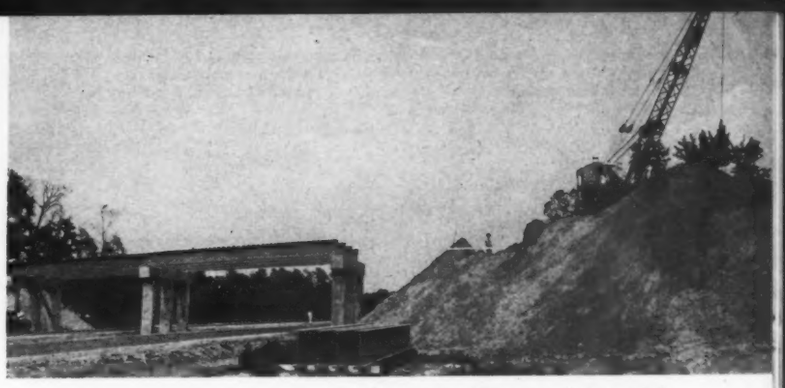
The 21 construction workers spilled into the sea when hurricane Connie kicked over the lifeboats evacuating them from the radar tower being built 100 miles at sea have an enviable story to tell their grandchildren. Only eight of the men were injured slightly when high seas turned the boats end over end. More than 50 other men will also have a story—though a less spectacular one—to tell. They remained on the tower to ride Connie out.

Even in these days when everyone talks glibly of billions of dollars, the whopping $392,500,000,000 spent on public and private construction in the ten years since V-J day is an impressive sum. This, according to CIT Corp., the firm which made a study of construction spending, is more than the total spent for the 45-year period before the end of the war. Of the total, the almost $24 billion spent on highways exceeds the amount spent on roads in the 22 years from 1923 to V-J day. And the $15 billion which went into schools between 1945 and 1955 is just about double the sum spent for the same purpose between 1920 and 1945.

Motorists who flick lighted cigarettes from their cars are being shamed into using automobile ash trays when riding along the Henry Hudson Parkway in New York. In burnt-over areas where fire has damaged fencing and grass along the road, signs reading "Careless Smokers Caused This Destruction" have been erected in the hope that drivers will take note and be more careful.

"Construction" shouldn't be a gamble, but it was just that when the Monmouth Park race track, Oceanport, N. J., gave the name to the race honoring its builder, F. H. McGraw & Co., New York City, on the track's ninth anniversary. Clifford S. Strike, right, president of the firm, looks on as his wife presents the winning trophy to the jockey and trainer of "Big Billie" a 29 to 1 shot.

A Caterpillar No. 21 scraper working the borrow pit a mile from the job is push-loaded by an Allis-Chalmers HD-20 and pulled by a Caterpillar DW21 tractor.
C&E Staff Photos



▲ Fill for the abutment sill is graded by a Bucyrus-Erie 15-B crane with a 1-yard clamshell. The overpass is made up of four I-beam stringers on three reinforced concrete bents, and two abutments.

Overpass approaches built as part of bypass program

One of the larger earthmoving jobs involved in the construction of a series of bypasses on U. S. 301, the main north-south artery in North Carolina, was done on the 1½-mile-long Fayetteville bypass. This relocated stretch, consisting of two 24-foot asphaltic-concrete roadways separated by a 10-foot grassed median, is—like other bypass projects now under way—designed to alleviate traffic bottlenecks in towns and cities along U. S. 301.

Approximately 140,700 cubic yards of fill for overpass approaches on the Fayetteville section was moved under a separate $57,000 contract by Grannis & Sloane, Fayetteville.

Hauling was done by a fleet of machines consisting of Caterpillar DW21 rubber-tire tractors with scrapers. These kept the haul road well compacted, and a truck-mounted water distributor, also riding along the road, helped with compaction and controlled dust. In the borrow pit, an Allis-Chalmers HD-20 tractor was kept busy push-loading the scraper fleet, while another tractor—a Caterpillar D7—handled the rough grading on the approach fills.

As soon as one embankment was completed, a Bucyrus-Erie 15-B crane with a 1-yard clamshell graded the fill so that the reinforced-concrete abutment sill could be constructed. Three reinforced-concrete bents were built, two on the outside shoulders and the third on the median drainage strip of the bypass. The bridge superstructure, erected by Johnson & Geddes, Co., Fayetteville, under a $43,000 separate contract, consists of four steel I-beams with a reinforced-concrete deck carrying a 26-foot roadway across the bypass.

The Fayetteville bypass is one of several being constructed by the North Carolina State Highway and Public Works Commission to relieve traffic congestion in cities along U. S. 301. Other work currently being done includes 7.1 miles of grading and building of structures in the relocation of U. S. 301 around Smithfield, 9.2 miles of concrete paving on the Rocky Mount bypass (see "Paving train works fast, smoothly on concrete paving" page 10), and 5½ miles of concrete paving along the Lumberton bypass. THE END

Soon to be humming to the tune of 39,000 vehicles a day, Ohio's new 241-mile toll road, of twin 24-foot pavements on 200 foot right of way, is taking less than 3 years from start to finish! This fast-stepping 20-hour-a-day pace is maintained by equipment drawn from all over the country—much of it rolling on Goodyear earth-mover and off-road tires built with 3-T NYLON Cord.

Look for this sign; there's a Goodyear dealer near you

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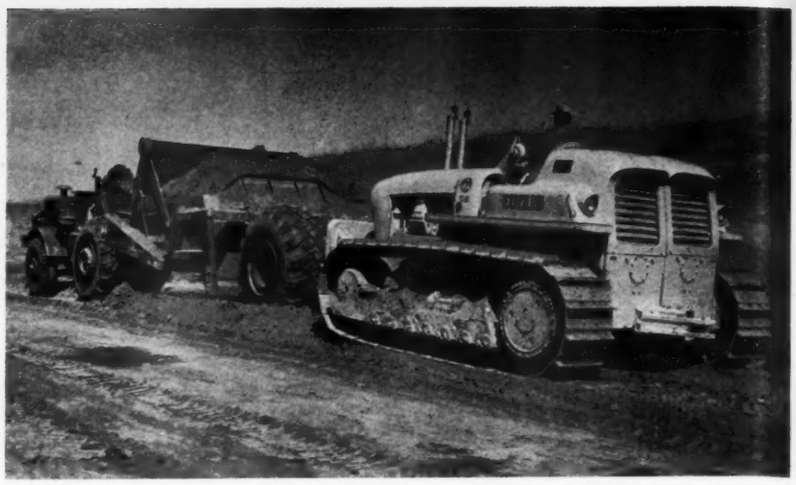
In the silt cut, a Euclid TC-12 push-loads a scraper. The twin 190-hp engines of the rig are connected to drive and track assemblies through torque converters, making the machine very maneuverable and giving it high drawbar pull at high speeds.

C&E Staff Photos

(Additional photo on front cover)



Its blade at an almost vertical angle, a Caterpillar No. 12 motor grader dresses the steep slope of the cut. Later, a horizontal pass brings material away from the bank so that scrapers can pick up their loads.

New tractors and scrapers work fast on approach fill

Equipment averages 70 to 80-second loading cycles; steep side slopes reduce erosion in deep silt cut

One of the first production models of the new Euclid TC-12 tractor and a fleet of four new 18-yard Euclid scrapers had a chance to demonstrate their high operating speeds in excavating what is probably the deepest silt cut in Indiana.

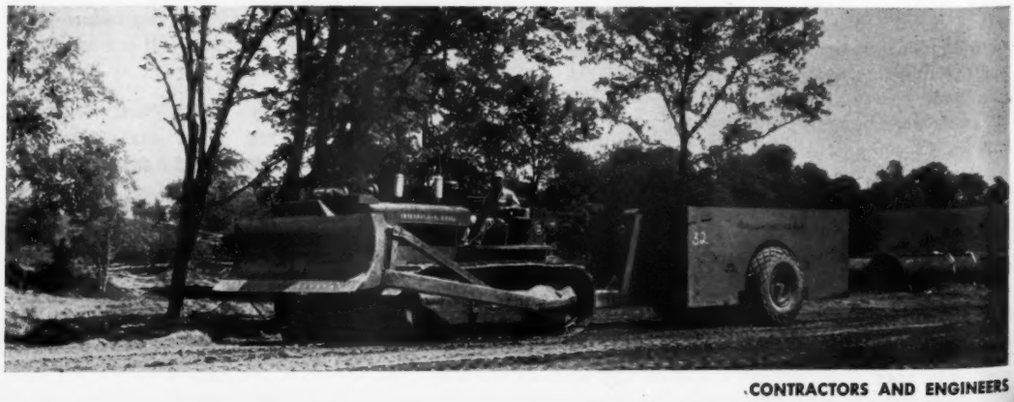
Working just west of Mount Vernon, Ind., on an approach road for the Wabash River toll bridge between Indiana and Illinois, the scrapers, pushed by tractors, picked up heaping loads in an average time of 70 to 80 seconds. Traveling on a well-maintained road, the machines frequently hit speeds in excess of 30 mph on the way to the fill.

The operators spread the loads on the fill without stopping, then swung around to race back upgrade almost as fast as they had come down. Round trips of nearly two miles were clocked regularly at less than 6½ minutes, including loading time.

The loess silt in which this grading was done is a wind-deposited soil subject to very severe erosion from wind and water when slopes are flat. For this reason, Feigel Construction Corp., Evansville, Ind., general contractor on the structures, grading, and paving of the 4-mile section, made a 35-foot-deep cut as well as shallower cuts with back slopes of ¼ horizontal to 1 vertical.

From the rolling silt hills which mark the boundary of the flood plain of the Wabash River, the project extends out across the flood plain to the abutment of the approach struc-

Two Euclid 18-yard scrapers are push-loaded with the help of a Euclid TC-12 and a Caterpillar D8 Whayne Champion tractor.



A Ferguson 50-ton compactor pulled by an International TD-24 compacts fill on the approach. The earth was unloaded in thin layers, however, and the weight of the heavy haul units was usually enough for satisfactory compaction.

During lunch periods, the haul units are carefully serviced with Lincoln and Alemite lubricating equipment. If necessary, servicing is also done between and after shifts.

C&E Staff Photo

ture leading to the new bridge. Most of the grading for this $923,000 contract for the Indiana State Highway Commission involves the construction of a long fill averaging 25 feet high across the flat river valley. This fill section is graded to accommodate a 22-foot reinforced-concrete pavement with 11-foot gravel shoulders on both sides. A base course of 5 to 7 inches of pervious material underlies the pavement, extending out through the shoulders for drainage. Fill slopes are 2 to 1, except in the few cases where the fills are less than 5 feet high. The cut sections are wide enough to provide a roadway section, equal to that on the fills, and side ditches.

Powerful rigs on long hauls

Most of the material from the cuts had to be hauled long distances to the fill in the valley. The maximum haul was about 5,700 feet and the average was almost 5,000 feet. It was on this part of the work that the new Euclid scrapers had a chance to show their heels. In the cut, two tractors were kept busy loading the four scrapers. One of these was the new Euclid TC-12. The other was a Whayne Champion D8—the standard Caterpillar D8 modified by Whayne Supply Co., Louisville, Ky.

The Euclid TC-12—revolutionary new tractor which has just gone into production—was one of the first six production models to go into the field. Each of its two GM 190-hp diesel engines is connected to separate drive and track assemblies through torque converters, giving the machine exceptional maneuverability and high drawbar pull at the higher speeds.

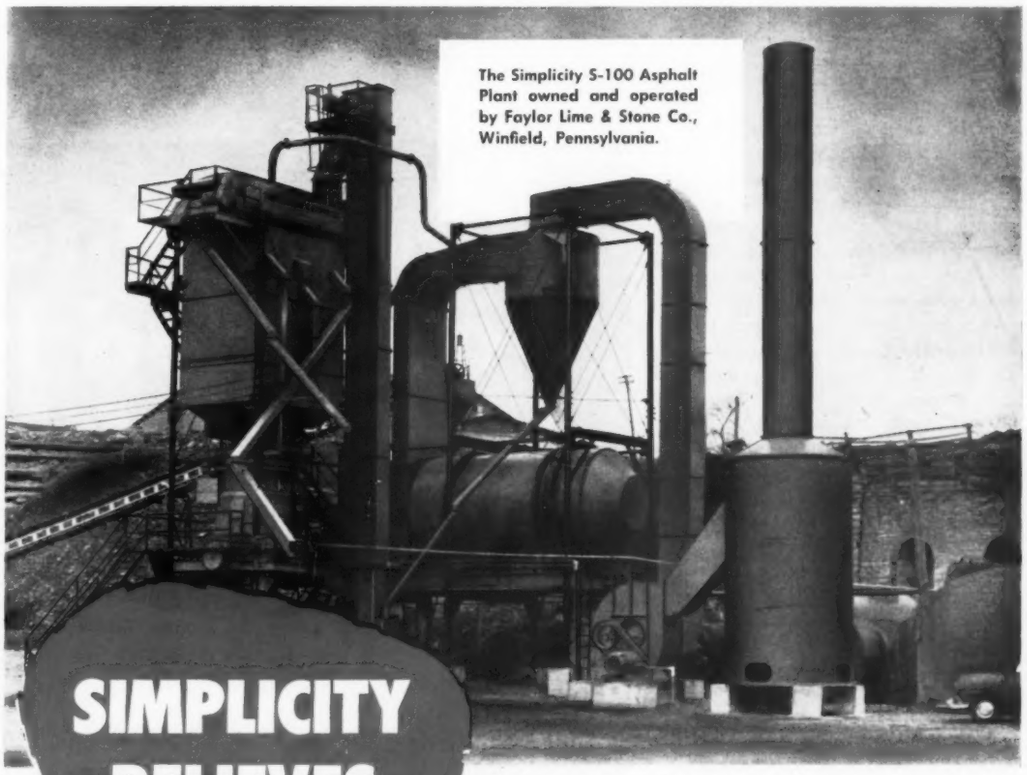
The combination of the two tractors, which were both equipped with torque converters, and the powerful new 18-yard Euclid scrapers provided a very smooth and fast loading cycle. The scrapers were powered by GM 6-110 diesel engines through torque converters. Taking a thin cut in the pure silt soil, the scrapers traveled a long distance to obtain a full load. Since this material did not readily roll or boil up into the scraper bowls, it took a lot of power to add the last few yards when the scrapers were nearly full. In spite of this, the average loading cycle was just about 72 seconds, and in many instances the rigs were on their way in less than a minute.

Cut slopes were accurately finished to the ¼ to 1 slope. As the scrapers lowered the cut, a Caterpillar No. 12 motor grader dressed the slopes with the blade carried in a nearly vertical position. The machine used a specially designed slope board with a spirit level to check and recheck the slopes until they were practically smooth and perfect. After trimming the slope, the motor grader made a pass with the blade horizontal to bring the excess material away from the bank where scrapers could easily pick it up.

Compacting long fill

While the excavation from the silt

(Continued on next page)



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A bubble-leveling device checks the ¼ to 1 slope of the bank. Keeping the sides of the cut at a steep angle prevented the silt from being eroded.

(*Continued from preceding page*)

cuts was one of the most interesting phases of the work, it actually represented only a small part of the total yardage. Excavation from the cuts totaled 192,000 cubic yards, while more than a million cubic yards was borrowed from a series of borrow pits to build the long fill across the valley.

Nine large borrow pits adjacent to the roadway supplied material for the fill. In most of these the excavation was carried down about 7 feet through sandy silt material to a strata of soft sand which was difficult and uneconomical to load. A fleet of three International TD-24 tractors and Bucyrus-Erie B-170 scrapers started working from the borrow pits, taking the shorter hauls. The Euclid scrapers then moved in to take over most of the hauls of more than 1,000 feet. Maximum hauls from the borrow pits were around 3,000 feet.

Whether the material was excavated from the cuts or borrowed, Feigel made sure the rubber-tire equipment operated at high efficiency by keeping the haul roads in good shape. As the fill material was spread in thin layers, it was carefully shaped by an International TD-24 tractor-dozer and a Caterpillar No. 12 motor grader. And while the scrapers continued to travel over the fill, the grader touched up any rough spots which developed.

The pure silt material from the cuts took a lot of water to meet compaction requirements. During the time this part of the work was being done however, frequent rains kept the material near optimum moisture content. When necessary, water was added from a 2,000-gallon tank carried on a 6 × 6 army surplus Studebaker truck.

Compaction was obtained as the heavy machines passed over the shallow layers of the fill, and very little rolling was required. Densities of 100 per cent Modified Proctor were commonly attained, even where the specifications required only 95 per cent.

When additional compaction was required, the contractor used Ferguson double-drum sheepsfoot rollers pulled in tandem by an International TD-24 tractor and a Ferguson 50-ton rubber-tire roller. The 50-ton roller was pulled by a Euclid four-wheel tractor or by one of the International TD-24's.

During the period when most of the excavation was in the silt cuts and hauls were very long, the Euclid scrapers and the push-tractors worked two 9-hour shifts while the tractor-scrapers only worked a single 9-hour shift. The combination of the four rubber-tire scrapers and three tractor-scrapers moved an average of 12,000 cubic yards of material per day on this schedule.

Later, when most of the material was coming from the borrow pits and hauls were shorter, the tractor-scrapers were also operated two 9-hour shifts per day. The combination of this extra shift and the shorter hauls boosted the average daily yardage to nearly 20,000 cubic yards. While work was running two 9-hour shifts, the lights of the machines were augmented by auxiliary floodlights mounted on pipe towers. Three of these units were powered by 1½-kw Kohler generators, and two were powered by Master Vibrator generators. One of the latter units was mounted on the lube truck to facilitate repair and service operations at night.

The equipment was all carefully checked and lubricated during lunch hours of both shifts and, when necessary, between and after shifts. The lubrication equipment, including Lincoln and Alemite pumps, a Gardner-Denver compressor, and Alemite hose reels, was mounted on the flat bed of a Ford truck.

Fill serves as levee

Drainage across the fill is carried through Armco asbestos-coated corrugated-pipe culverts, all of which are fitted with Armco flood gates to prevent a backflow of water when the river is at flood stage. Thus, the fill will act as a levee, protecting a considerable area of farm land on the south side against an additional 6 feet of flood water in the Wabash. A Bucyrus-Erie 22-B dragline was used to clean out the drainage channels and place the culverts.

To prevent erosion of the fill from wave and current action during flood periods, the contractor will plant

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20,00 seedling trees. These will probably be planted in three rows along the toe of the slope in the areas subject to the flood waters.

A woven-wire guardrail fence on both sides of the roadway will run the entire length of the fill. This is a substantial part of the 4-mile job, requiring 37,738 linear feet of the guard fence.

As soon as a good portion of the fill was completed, the pervious base-course material was hauled from roadside pits and spread on the roadbed by the grading equipment. The paving crew then moved in and started laying the 53,436 square yards of pavement. The 9-inch uniform thickness concrete slab is reinforced with 6×12-inch welded-wire fabric.

The job, started April 20, 1955, and scheduled for completion by December 1, is being supervised for Feigel Construction Corp. by Harry Gladhart. The work is being done under the Vincennes District of the Indiana State Highway Commission, of which John Barnett and C. S. McKee are district engineer and assistant district engineer, respectively. Project engineer is Joe C. Swan. Chief engineer of the Indiana department is Carl E. Vogelgesang. THE END

CIT Corp. division offices

Two division offices of CIT Corp., a subsidiary of CIT Financial Corp., New York, N. Y., have been relocated in new buildings in their respective cities.

The Atlanta division offices, formerly at 66 Luckie Street, are now located in a new building at 55 Marietta St., Atlanta, Ga. The division is directed by vice president E. H. Mayer, who supervises the firm's activities in Alabama, Florida, Georgia, North and South Carolina, and eastern Tennessee.

The Philadelphia division, which direct's business in Delaware, the District of Columbia, Maryland, southern New Jersey, eastern Pennsylvania, and Virginia, has been moved into a new building at 3 Penn Center Plaza, Philadelphia, Pa. This division is headed by assistant vice president C. E. Trudeau.

Three out of four traffic accidents occur in clear weather on dry roads. —California State Automobile Assn.

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Use of aggregate modifies atomic cell construction

Ferrophosphorus—an alloy of iron and phosphorus—is finding use as an aggregate for concrete atomic hot-cell shielding chambers, the room-sized installations in which radioactive materials are handled by remote control.

The need for close supervision of work within these cells means that the protective walls should be as thin as possible. Yet they must be thick enough to provide adequate protection for the operator manipulating the mechanical arms which handle the radioactive materials.

This was the problem confronting men at the Knolls Atomic Power Laboratory of General Electric Co., near Schnectady, N. Y., when early tests began under an Atomic Energy Commission research contract to find the best means of constructing the cells. It was found that ordinary concrete, with a density of 150 pounds per cubic foot, would have to be poured in a 6 to 8-foot-thick wall to absorb radiation from one of these cells. Low-grade iron ore and other ores provided a maximum density of between 200 and 220 pounds per cubic foot. Scrap steel, and shot and steel punching, produced a dense concrete, but segregation occured to affect the workability of the mix.

Ferrophosphorus, it was found, produces a density of 290 to 330 pounds per cubic foot, is extremely workable, and does not produce segregation. The density of concrete using ferrophosphorus makes it possible for the cell walls to be thin while giving enough protection to workmen nearby.

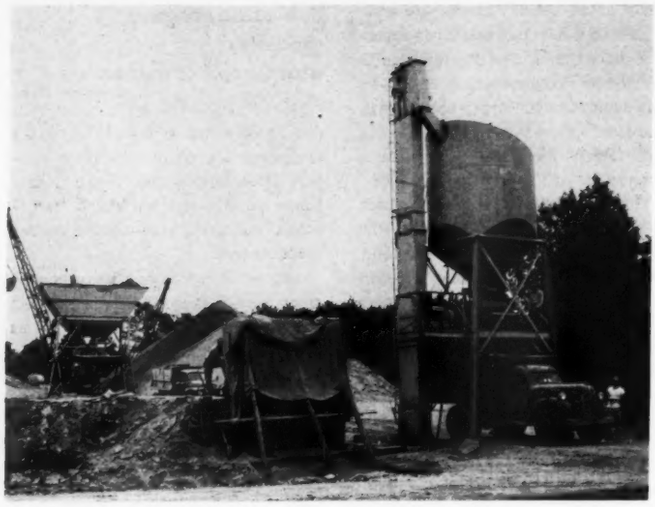
The material, now being produced in quantity by Victor Chemical Works, Chicago, Ill., at its plants in Mount Pleasant, Tenn.; Victor, Fla.; and Silver Bow, Mont.; is crushed and sized to special particle-size distribution. This allows it to be mixed in standard concrete-mixing equipment with water and ordinary portland cement. The resulting concrete is twice as heavy as ordinary concrete, but is extremely workable.

Syntron Sales Co. changes

Appointments and promotions have been made at five of the sales companies handling Syntron vibratory equipment, conveyors, feeders, power tools, and other construction equipment made by Syntron Co., Homer City, Pa.

Aubrey Nickels has been added to the staff of Syntron St. Louis Sales Co., St. Louis, Mo., Leon P. Hauck has been made a salesman for the Syntron Buffalo Sales Co., Buffalo, N. Y., and Stanley Matejeck has been employed as salesman and serviceman at Syntron Power Tool Co., in Hasbrouck Heights, N. J. Graham Bell is the new power tool salesman for Syntron Philadelphia Sales Co.

Frank Belletieri, formerly of Syntron Reading Sales Co., has been promoted to vice president of Syntron Irvin Sales Co., Indiana, Pa.,



Batch trucks, each with a 3-batch capacity, are loaded with aggregate from the Blaw-Knox hopper in the background, and with cement from the Butler bin, foreground.

C&E Staff Photos

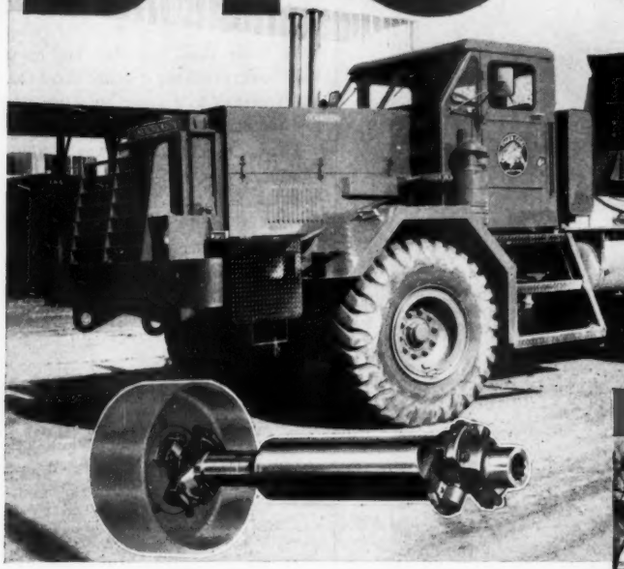
Paving train works fast, smoothly on concrete paving

Mechanized operations and centrally located batch plant keep production high on one of North Carolina's new bypasses

BIG

FOR MINE HAULING

Jobs Can't Afford to Be Kept Idle by Needless Down-Time



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FOR OFF-HIGHWAY JOBS

Why Not Give YOUR Truck MECHANICS Advantages?

MECHANICS Roller Bearing UNIVERSAL JOINTS will give *your trucks more road time and less shop time* because MECHANICS JOINTS are specially designed with less parts and connections — for *easy assembly and servicing — smooth running balance — maximum strength with less weight* — and *long, trouble-free, safe operation.* Either the joints or brake drum can be serviced independently without disturbing other attachments or altering original drum or propeller shaft balance. Let MECHANICS engineers give *your trucks or other heavy-duty machines* these competitive advantages.

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For Cars • Trucks • Tractors • Farm Implements • Road Machinery • Aircraft • Tanks • Busses and Industrial Equipment

For more facts, use Reader-Reply Card opposite page 18 and circle No. 505

Approximately 1,600 feet of 24-foot-wide concrete roadway is being paved in a 10-hour work day on relocated U. S. 301, the heavily traveled north-south artery in North Carolina. The high production figures and smooth operation on this job are being achieved mainly because of the completely mechanized paving train and the centrally located batch plant being used by the contractor.

This is a $626,606 contract held by Nello L. Teer Co., Durham, N. C. The work, started in April and scheduled to be finished and opened to traffic by December, is being done for the North Carolina State Highway and Public Works Commission. The commission is now in the process of building by-passes around all major towns and cities along U. S. 301, and this 9-mile paving job is one of these projects.

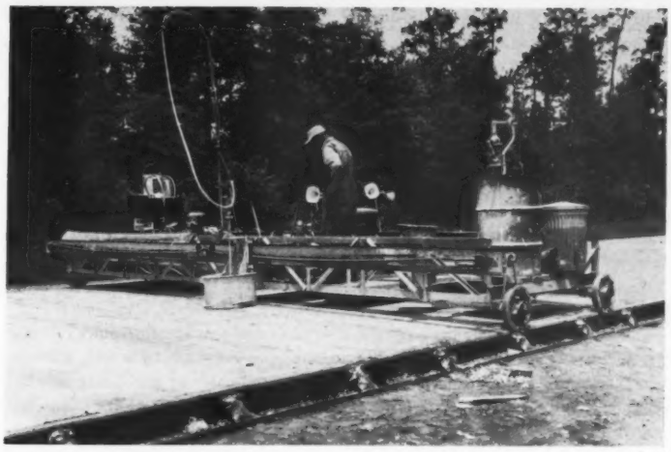
Beginning 2.9 miles north of Rocky Mount, the job consists of an 8-inch plain concrete slab resting on a 3-inch base of crushed stone, 1½ inches and smaller, which has a 1-inch cover of sand. When completed, the bypass will have 10-foot grassed shoulders and only three grade separations, one of them a railroad crossing. Side slopes are 1½ to 1 where cuts and fills are over 10 feet, and 2 to 1 where cuts and fills are between 5 and 10 feet.

Paving train

Teer, using about 3,500 feet of steel forms on the job, has a self-propelled Schramm Pneumatractor air compressor to drive form stakes. After 24 hours, forms are removed by hand, loaded into trucks, and moved ahead of the paver. A gap is left in the forms about 100 feet ahead of the paver so that batch trucks can run between the forms from the shoulders of the road, back up to the paver, discharge, and leave the paving lane via a gap in the forms on the opposite side of the lane.

The first piece of equipment in the paving train is a Rex 34-E double-drum paver with a 45-foot boom. As it rides between the forms, it produces a 37.4 cubic-foot batch of concrete every 55 seconds from its double-gated bucket. Shaping of the final grade is done by a Cleveland Trail-grader pulled by the paver. Excess

Riding between the forms, a Rex 34-E double-drum paver with 45-foot boom dumps a 37.4-cubic-foot batch of concrete every 55 seconds.



A Heltzel Flex-Plane rig sprays concrete with Hunt Clear Cure after the slab has dried and achieved its initial set.

material is removed by men with shovels working on either side of the Trailgrader.

The full-width pour is spread by a Blaw-Knox spreader with a rear vibrator attachment covering the 24-foot width between the forms. A workman on a rear platform of the spreader inserts ½-inch-diameter transverse tie rods at 36-inch intervals along the roadway center line. These go approximately two inches below the surface of the slab.

A Blaw-Knox double-screed finisher follows the spreader, working transversely to smooth out the concrete. Longitudinal floating to remove the transverse ridges left by the finishing machine is done by a Koehring floating machine. A Heltzel Flex-Plane machine brings up the rear of the train, cutting a 2-inch slot along the center line of the roadway and allowing workmen riding the rig to place ¼-inch-wide and 2-inch-deep steel fillers in the slot.

These fillers, supported in place by the denseness of the concrete and the transverse tie rods, are removed as soon as the slab has achieved its initial set. Hand finishing, done with lutes and trowels, comprises the last operation on the concrete.

After the slab is sufficiently dry and initial set has taken place, another Flex-Plane sprays Hunt Clear Cure on the concrete.

The transverse expansion and contraction joints placed on either side of the structures, as well as the longitudinal center joint, are filled with a bituminous material after the slab has been cured. Dummy joints, placed every 30 feet, are formed by embedding steel fillers 2½ inches below the surface. These fillers are removed when the concrete has reached initial set, and the joints, when dry, are also filled with a bituminous material.

Water for the paver is supplied from a contractor-built 400-gallon tank truck which is replenished by water tankers. These obtain the water from a stream flowing under the roadway. The tank truck, pulled along by the paver, rides on the shoulders outside the forms.

Batch plant

The contractor's batch plant is

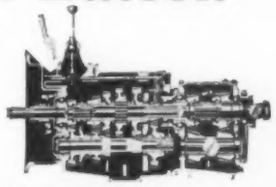
(*Concluded on next page*)

Big loads, faster, speed new dam for Southern California Edison

Here is one of a fleet of Kenworth 801 earth movers, used by Southern California Edison to excavate and fill at their recently-completed dam in the Vermillion Valley of Central California.

Each of the Kenworths is powered by a 200 hp diesel driving through a Fuller 10-F-1220 Transmission—hauling a rated payload capacity of 36,000 lbs. This 10-speed heavy-duty transmission has even, short steps (average 30%) between ratios that help maintain rpm at the most efficient, highest economy range.

On job after job, where loads are the biggest and the going is the toughest, you'll find Fuller Transmissions putting horsepower to work efficiently. Next time you order heavy-duty construction equipment, specify Fuller Transmissions.



Model 10-F-1220, Fuller heavy-duty Transmission designed for use with engines up to 1220 cu. in. displacement.

Fuller TRANSMISSIONS

FULLER MANUFACTURING COMPANY (Transmission Division), KALAMAZOO, MICHIGAN

Unit Drop Forge Div., Milwaukee 1, Wis. • Shuler Axle Co., Louisville, Ky. (Subsidiary) • Sales & Service, All Products, West. Dist. Branch, Oakland 6, Cal. and Southwest Dist. Office, Tulsa 3, Okla.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 506

centrally located in the 9-mile-long project and is about 1½ miles away from a railroad siding. Equipment at the plant includes a Blaw-Knox 30-batch hopper with three bins for aggregate, a Butler 240-barrel bin for cement distribution, two Northwest cranes with clamshells which work the stockpiles, and a Caterpillar D6 tractor which pushes delivered aggregate into the stockpiles.

Aggregate is stockpiled in two sizes —sand, and stone 1 inch and smaller —and is fed into the hopper by the Northwest cranes. Stone is stored in two bins and sand is stored in the remaining bin. Eleven batch trucks, each having a 3-batch capacity, obtain the aggregate first. Each batch, weighed out by a Toledo beam scale, contains 1,554 pounds of sand and 2,800 pounds of stone (weights with moisture). After obtaining the correct amount of aggregate, the trucks drive to the Butler bin for 780 pounds of cement per batch.

Sand and stone, delivered to the plant by trucks and dumped near their respective stockpiles, are pushed into the piles by the Cat D6 assisted by the cranes. The cranes, continually busy, charge the Blaw-Knox hopper and keep the stockpiles in order.

Cement is delivered from a railroad siding to the plant by trucks. A Blaw-Knox unloader at the siding fills the trucks with cement. At the plant, the trucks empty cement into a hopper feeding a conveyor which raises the material to the Butler bin. The best plant output for a 10-hour day has been 721 batches, and this output was reached with only eight men operating the plant.

Personnel

S. Macon is the project manager for Nello L. Teer Co. The resident engineer for the North Carolina State Highway and Public Works Commission is J. F. Martin. All the work is being done under the supervision of the Fourth Division of the highway commission. E. P. Koonce is division engineer. THE END

Air-line lubricators

■ A new booklet describes a variety of Ingersoll-Rand air-line lubricators available in sizes which can be used with equipment ranging from the smallest hand-held air tools to the largest quarry-type drills.

A cutaway view shows the working parts of a new lubricator available in ½ and 1-pint sizes. The Oil-IR model works equally well on constant or pulsating air pressure and operates efficiently in any position. It will handle any oil or liquid grease that will flow at the temperature in which the unit is to be operated.

Fixed I-R air-line lubricators available in quart, 2-quart, and 12-quart sizes are also illustrated.

To obtain Form 4169 write to Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y., or use the Request Card at page 18. Circle No. 605.

Aggregate spreader lays up to 5,000 tons daily

■ The Jersey spreader, reportedly capable of laying up to 5,000 tons of aggregate daily, is illustrated in literature from Tractor Spreader Co., Hasbrouck Heights, N. J. The spreader handles broken stone, crushed gravel, bank-run gravel, screenings, slag, lime rock, and a variety of other free-flowing materials.

Mounted on two castered rubber tires and pushed by a crawler tractor, the Jersey spreader has a large hopper into which 6½ tons of aggregate may be dumped. Depth of spread ranges from 1 to 16 inches and width from 10 to 14 feet. A strike-off blade adjusted by two handled screws directs the flow of aggregate.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 641.

Catalog on equipment for washing and classifying

■ A booklet from Eagle Iron Works, P. O. Box 934, Des Moines, Iowa, illustrates washing and classifying equipment for sand, gravel, crushed stone, and ore. The booklet covers the general operation of such equipment, its construction features, and available motor mounts and drives.

Among equipment illustrated are long-weir, screw washer-classifier-dehydrators for fine material; water scalping - classifying tanks; screw washer-dewaterers for coarse materials, and paddle-type log washers.

To obtain Catalog 55 write to the company, or use the Request Card at page 18. Circle No. 669.

Flexible metal hose

■ A new bulletin on interlocking flexible metal hose has been issued by the Atlantic Metal Hose Co., Inc. 308 Dyckman St., New York 34, N. Y. It describes twelve types of such hose. Applications listed include the use of the metal hose as wire casing for prestressed concrete.

The bulletin describes construction of the hose, types of metals available, and the range of sizes and metal thicknesses in which it is available. It also contains complete data on diameters, bending radii, weights, packings, and fittings.

To obtain Bulletin 50-B write to the company, or use the Request Card at page 18. Circle No. 630.

1,000 horsepower hoists the bucket— 2 TIMKEN® bearings carry its weight

IT takes two 500 horsepower motors to hoist the bucket when this new Marion 7800 walking dragline stretches out its 220-foot boom, scoops up 35 cubic yards of strip mine overburden, and raises it as high as 85 feet.

All the load, of course, is concentrated on the boom point sheave. Which is one reason Marion engineers mounted the sheave on Timken® tapered roller bearings. Line contact between rollers and races gives them capacity to spare. And regardless of the load, these Timken bearings turn with little friction, because they have true rolling motion.

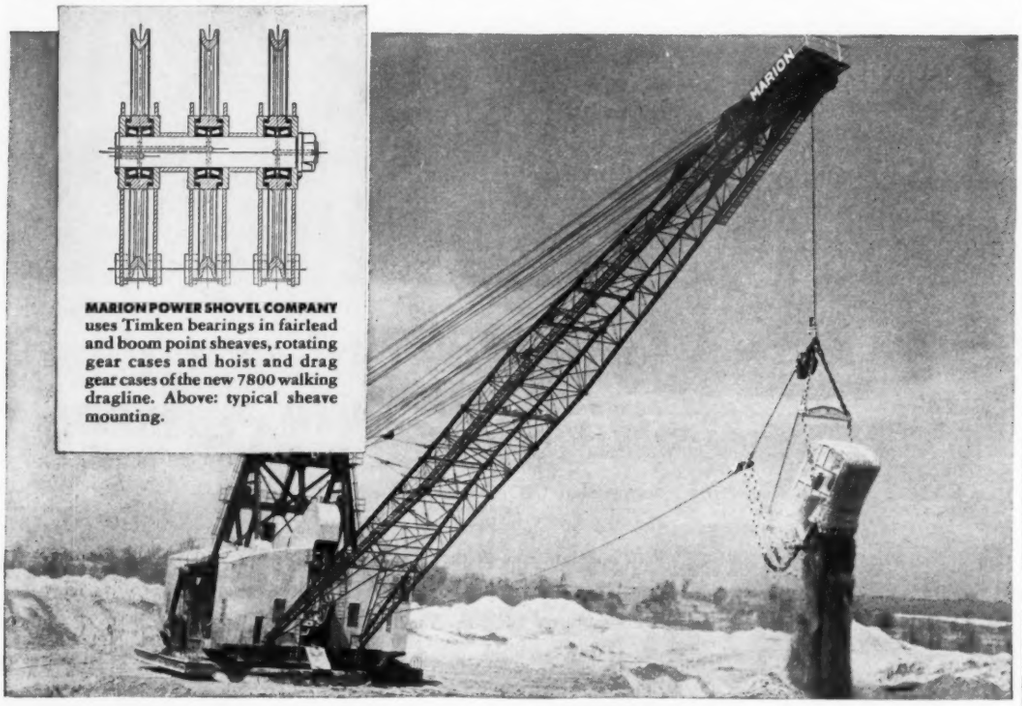
When the bucket swings to dump—in a circle over 150 yards across—its sideways pendulum action tries to twist the big sheave out of line. This adds a heavy thrust load to the already-heavy radial load on the bearings. But the Timken bearings, being tapered, can take both kinds of loads in any combination. No extra thrust bearings are needed.

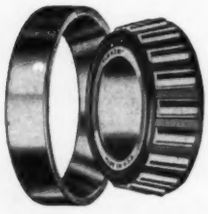
Timken bearings are made under the only complete quality control in the bearing industry. We go so far as to make the steel ourselves; no other bearing maker in the country does.

It all adds up to longer life and lower maintenance with Timken bearings. And, in terms of performance, lowest cost. Building or buying machines, specify the bearings with the trade-mark "Timken". The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best.

MARION POWER SHOVEL COMPANY uses Timken bearings in fairlead and boom point sheaves, rotating gear cases and hoist and drag gear cases of the new 7800 walking dragline. Above: typical sheave mounting.





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TRADE-MARK REG. U. S. PAT. OFF.
TAPERED ROLLER BEARINGS

WE MAKE OUR OWN STEEL

The special grade alloy steel which gives Timken bearings their strength and resistance to wear is made in our own steel mills.

Only Timken tapered roller bearings have these advantages: 1. advanced design; 2. precision manufacture; 3. rigid quality control; 4. nickel-rich Timken alloy steels.

NOT JUST A BALL ○ NOT JUST A ROLLER ▭ THE TIMKEN TAPERED ROLLER ▱ BEARING TAKES RADIAL ↕ AND THRUST ↔ LOADS OR ANY COMBINATION

For more facts, use Reader-Reply Card opposite page 18 and circle No. 507

Special belt constructions

■ A new data sheet on its special conveyor-belt constructions has been issued by The B. F. Goodrich Co., Industrial Products Division, Akron, Ohio. Featured is the Riffle Grip conveyor designed to retain or separate water in a load traveling on inclined conveyors.

The molded cover design has a tread which forms a horizontal carrying wall when a prescribed combination of conveyor incline and concentrating idler is used. Wet concrete may be carried without sluicing back. In dredging operations, a load can be drained of water by idler adjustment.

The data sheet also describes wire-inserted belts for foundry service, a turnable conveyor belt, and belts with stepped plies, reinforced covers and flanges.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 603.

Diamond drill bits

■ A line of diamond drill bits recommended for use in blast-hole drilling, tunneling, concrete testing, and other heavy-construction applications is described in literature available from the Diamond Tool Research Co., Inc., 380 Second Ave., New York 10, N. Y.

DTR coring bits, casing bits, casing shoe bits, concave bits, pilot bits, band-type reaming shells, strip-type reaming shells, and impregnated coring bits are among products offered by the company. The sizes, specifications, and prices for each are given in handy tables.

The literature tells how DTR bits are made and why DTR's method of setting diamonds in the face of the bit is the key to the economy of its product.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 714.

Catalog gives details on form hardware

■ A 60-page catalog giving full information on its line of concrete-forming equipment is available from the Williams Form Engineering Corp., 150 Madison Ave. S. E., Grand Rapids 7, Mich. The booklet contains a number of photographs of formwork on heavy-construction projects.

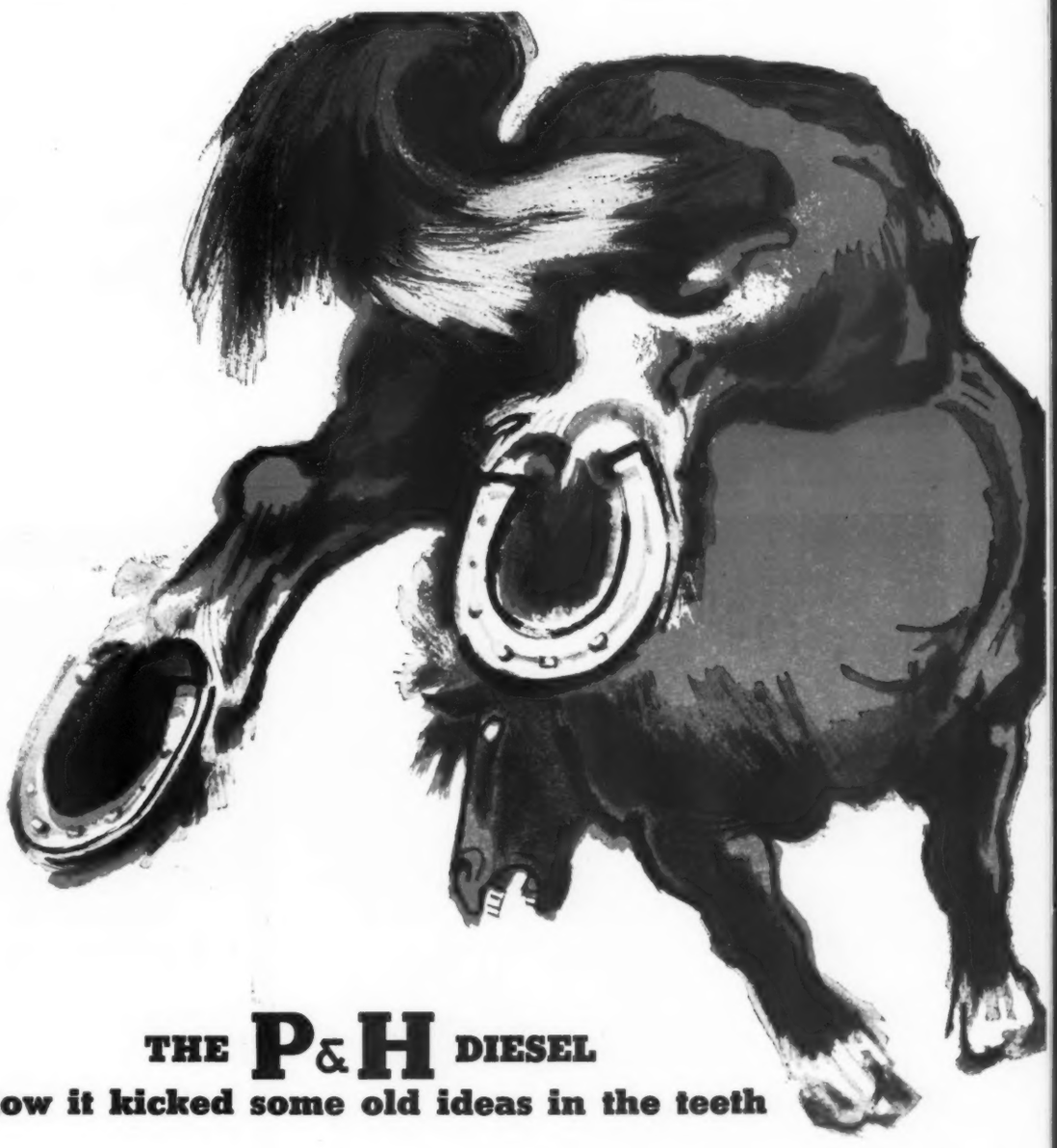
Products described include the Williams Vibra-Lock clamp, recommended for formwork on dams, bridges, and other heavy construction; Super-Hi tensile tie rods; the Wedge-Lock wire tie, recommended for use on sewage-disposal plants and filtration plants; and a line of braces, chairs, joint strips, hangers, and many other types of form hardware.

Specifications for all products are given, and diagrams detail the construction and use of the products.

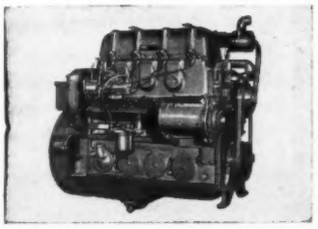
To obtain Catalog No. 1955 write to the company, or use the Request Card at page 18. Circle No. 718.

For more facts, circle No. 508→

A NEW HYDRAULIC LOADER for use on Caterpillar D4 tractors with nonoscillating tracks is announced by Ulrich Products Corp. The Model D4-H, developed to replace cable-operated loaders, is said to feature sturdy construction, fast operation, a wide range of bucket positions, and low cost. For further information write to Ulrich Products Corp., Roanoke, Ill., or use the request card at page 18. Circle No. 739.



THE P&H DIESEL
how it kicked some old ideas in the teeth



Series C-18 P&H Diesels — now with *single*, fully self-contained fuel pump; perfect timing and balance for each cylinder. 30 to 255 horsepower, two-cycle. 2, 3, 4, 6-cylinder models, speeds up to 1800 r.p.m. Stationary, mobile, marine, diesel-generating sets.

Old idea: that diesels had just about reached the limit of efficiency. Then came the P&H — and a new high in horsepower per pound of engine weight.

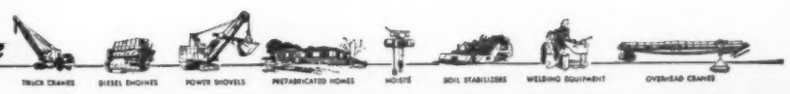
Old idea: that diesels were costly by nature, $20.00 a horsepower and more. Then P&H drove the price down to a record low — $16.32.

Old idea: that horsepower ratings must always be tricky. P&H chose a new rating — horsepower measured right at the driveshaft, where every bit of it works for you.

The best idea, of course, is to learn *all* the ways this engine gives you more for your money. We'll be glad to send you the full story; write P&H Diesel Engine Division, Harnischfeger Corporation, Crystal Lake, Illinois.

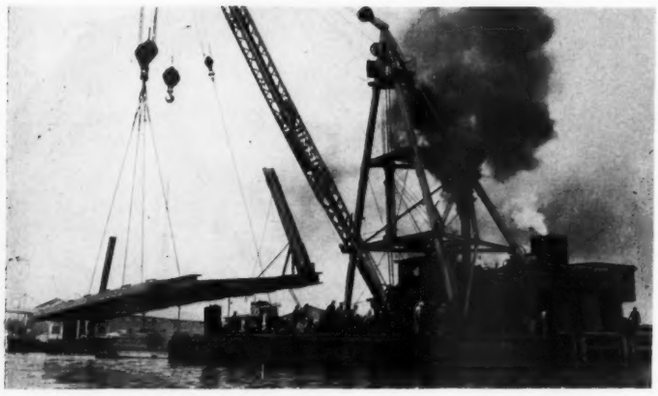
HARNISCHFEGER

the P&H Line



Louisiana tunnel work

Wellpoints dry deep excavation for Belle Chasse tunnel



Building a tunnel under a canal is not nearly as tough a job as it might seem—provided the tunnel is built before the canal is dug. This convenient sequence of operations was possible in the construction of the recently completed Belle Chasse Tunnel under the Algiers Cutoff Canal just south of New Orleans.

The cutoff canal, which is being constructed by the U. S. Corps of Engineers with the cooperation of the Louisiana Department of Highways and Plaquemines Parish as a part of the Intracoastal Waterway System, connects the Mississippi River and the Harvey Canal, and will permit marine traffic on the Intracoastal Waterway to by-pass busy New Orleans harbor.

Where this new canal intersects

Toughest work on Harvey tunnel is sinking cofferdams in mud

The 102-ton lower truss for one of the two common cells in the middle of the canal is held aloft by a steam-powered floating derrick as the rig is pushed into position inside the cofferdam by a tug.

Fred Barry, The Times Picayune

Low road or high road

THROUGH THE CORN FIELDS

OR

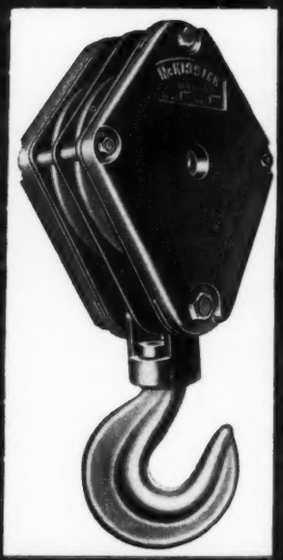
THROUGH THE MOUNTAINS

MOTO-PAVER SPEEDS THE JOB—CUTS THE COST

Whether your road jobs are mostly in flat, level country or in mountain areas, Moto-Paver can help you *get* more work—and *do* more work—because it will enable you to speed the job—do more work with less help—and cut the cost. Moto-Paver uses sand, gravel, crushed stone or slag aggregates and various bituminous materials including tars, cutback asphalts, road oils and emulsions. Road speeds up to 25 mph. make possible quick moves from one job to another. Standard and heavy duty models for all types of resurfacing jobs and all kinds of operating conditions. See your H & B distributor or write for Bulletin MP-55.

HETHERINGTON & BERNER INC., *Engineers—Manufacturers*
731 Kentucky Avenue Indianapolis 7, Indiana

For more facts, use Reader-Reply Card opposite page 18 and circle No. 509



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DROP BLOCK
saves TIME
TIME *spells*
M-O-N-E-Y

Available in 5 to 60 ton capacities with roller thrust bearing hooks for free swiveling under loads.

Heavily weighted for free, fast falling. Pressure grease lubrication throughout.

10" to 24" diameter alloy steel flame hardened sheaves mounted on high speed bronze bushings or Hy-load roller bearings.

McKISSICK BUILDS A BETTER BLOCK FOR EVERY PURPOSE

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McKISSICK PRODUCTS CORPORATION
Box 2496 Tulsa, Oklahoma

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Problems on the Belle Chasse Tunnel and those on the Harvey Canal Tunnel, structures which carry vehicular traffic under two canals of the Intracoastal Waterway in Louisiana, were as unlike as possible.

Yet both tunnels, located within a few miles of New Orleans and within five miles of each other, were designed by the same firm of consulting engineers, constructed for the same highway department, and, though one is being built under a joint-venture contract, the same firm was general contractor on both jobs. At one point both jobs were under construction simultaneously.

What makes the jobs so different is that the Belle Chasse Tunnel, completed this month, was built in the dry with the aid of a wellpoint system, while the Harvey Canal Tunnel is being built in two large coffordams, forcing the contractor to keep up a constant battle to keep water and mud from breaking into the excavation. Site conditions played a part in the way the jobs were to be done. The uncompleted Algiers Cutoff Canal had no water traffic to complicate work on the Belle Chasse Tunnel; the Harvey Canal carries a continuous flow of marine traffic which means that half the waterway has to be kept open at all times.

State Route 31, known as Belle Chasse Highway, the Louisiana Department of Highways was faced with the alternative of building and operating a lift bridge over the canal, or of constructing a tunnel under it. The probability of frequent and extensive delays to highway traffic while a bridge was being opened and closed was a

(Continued on next page)

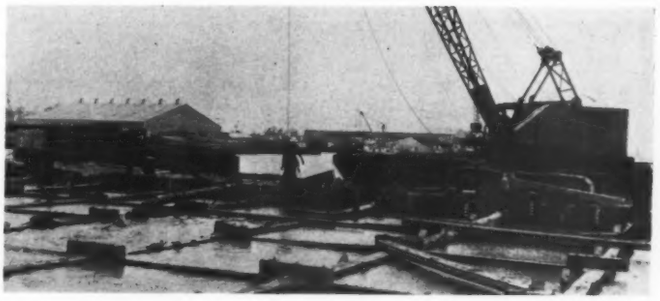
A view of the pouring operation. A Koehring 605 crane delivers concrete in an Insley 1-yard bucket from the Koehring 34-E Twinbatch paver on the bank in background. The Blaw-Knox steel form section is at lower left.

C&E Staff Photo

Sinking two big cofferdams in a busy ship canal to carry excavation nearly 50 feet into the soft and treacherous mud of the Mississippi delta was the toughest task involved in the construction of the Harvey Canal Tunnel just across the Mississippi River from New Orleans, La.

This double-barrel four-lane ve-

(Continued on page 19)



The alluvial river soil, standing in ridges along the sheeting and under the bracing frames, is cut down by a 5-nozzle jet pipe handled by a Koehring 605 crane. A Hale 5-inch high-pressure pump brings water to two 2½-inch hoses and the jet pipe.

C&E Staff Photo

LOW COST PORTABLE HEAT
saves time and money for contractors

For only a few cents an hour in fuel, you can dry plaster, fast, even on cold or humid days; pour and cure concrete safely at any temperature and keep men working, inside or out, in freezing weather. That saves hours of time . . . and time means money.

Your Master Heater rolls into place, starts at the flip of a switch. You don't need a vent. Three models put out 100,000; 160,000 or 400,000 BTU's per hour; burn inexpensive kerosene or fuel oil.

The low price is repaid time after time in hours saved and workmen working.

Write for full information or see your Master distributor.

MASTER VIBRATOR COMPANY
344 Stanley Ave., Dayton 1, Ohio

MASTER

For more facts, use Reader-Reply Card opposite page 18 and circle No. 511

How to put more bite in dipper teeth
. . . and save money besides

Your dipper teeth will dig longer, work harder when faced with Lincoln Hardsurfacing.

And, your Hardsurfacing will cost less.

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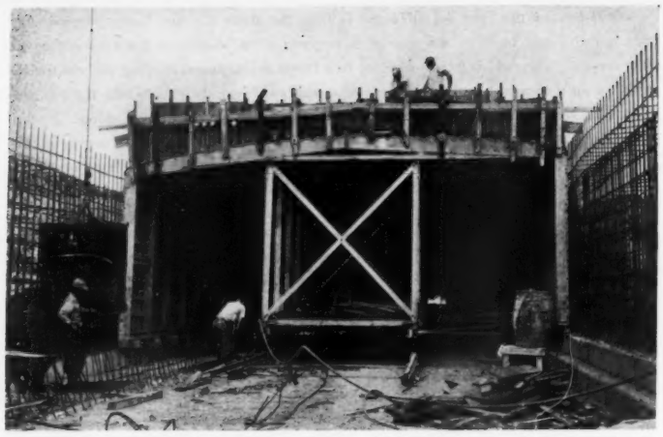

The Blaw-Knox traveling steel form, supported by falsework on rails, is set in position for another pour on the tunnel barrel. Concrete for the sidewalk and air ducts is hauled in wheelbarrows from the Insley bucket at left.

Prior to the pour, workmen spread kraft paper on the steel tunnel form and lay clincher-back tile for the tunnel lining on the paper. The tile is covered with 2 inches of grout before any concrete is placed.

. . . Imagine what this Power Products Lightweight can do for your equipment

Do a little "imagineering" in terms of your products! Wouldn't such dramatic weight savings create tremendous advantages in your equipment — make it easier to carry — eliminate heavy and costly frame structure, wheels etc.

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(Continued from preceding page)

major factor in the decision to build the tunnel. R. P. Farnsworth & Co., Inc., New Orleans, general contractor for the tunnel project, began work March 5, 1954. The job is scheduled for completion this month.

To facilitate construction of the tunnel, the dredging of the canal in the vicinity of the highway was delayed until after the tunnel had been completed. Although the natural ground at the site lies within a few feet of sea level and is anything but dry even under the best of conditions, the job was much less complicated than if the canal had been finished and in operation.

The site selected for the tunnel lies parallel to and about 250 feet south of the existing highway. The choice of this location made it unnecessary to interrupt traffic on the highway or construct a detour during the construction period. Also, the contractor's operations could be carried on a safe distance from a railroad track which parallels the highway on the north side.

New pavement was constructed to connect both approach ramps with the existing highway. Upon completion of the tunnel, traffic will be routed through the tunnel so the canal can be dredged through the old roadway.

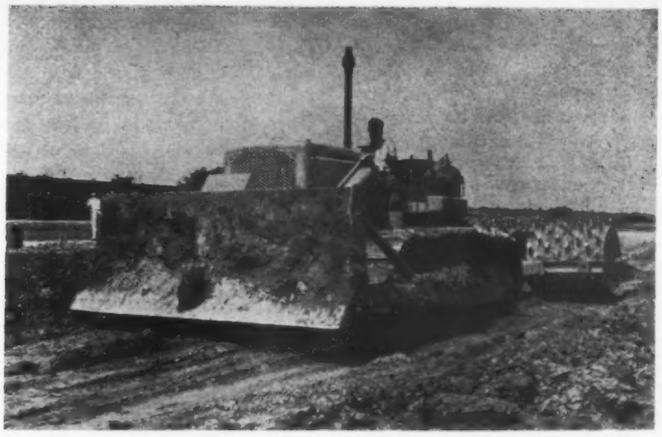
Soft ground

After clearing the dense growth of trees and brush from the site, the contractor made the initial excavation with a big Bucyrus-Erie walking dragline which worked from timber mats. With its 9-yard bucket, the machine stripped off the overburden down to a maximum depth of about fifteen feet. At this elevation, the natural delta soil was practically fluid. The soil was so soft at about seven feet below the surface that a man trying to walk on it would sink in to his hips.

To extend the excavation deeper, a double row of wellpoints was installed and a cofferdam constructed around the barrel section of the tunnel. The barrel of this tunnel was 35 feet wide, 21 feet high, and 800 feet long, portal to portal.

The outer row of wellpoints was installed at the 7-foot depth 60 feet

This 8 x 6-inch pump, powered by a GM diesel engine, is one of several which operated the wellpoint system used to lower ground water for the tunnel excavation. The pump is mounted on the top of the finished barrel midway in the project.



A Caterpillar D7 tractor-dozer pulling a Tampo sheepsfoot roller places and compacts backfill behind the completed tunnel walls. R. P. Farnsworth & Co., Inc., New Orleans, was the general contractor on this project.

out from the barrel of the tunnel. The dewatering 2-inch points on 20-foot pipes were jetted into place and surrounded with a jacket of clean Rigolets sand. The inner row, located just outside the barrel, was sunk from the 15-foot level in the same manner as the first row. The points were connected to 8-inch headers which were pumped by electric and gasoline-driven pumps. The entire system, which included a maximum of 500 points in six separate sections, was rented by R. P. Farnsworth & Co., Inc., and installed by the company's crew.

Deepest excavation

To get down approximately 44 feet below natural ground for the lowest section of the tunnel, the contractor installed an open cofferdam 45 feet wide and 456 feet long. MZ-38 steel sheet piling, rented from L. B. Foster Co., Pittsburgh, Pa., was driven into the muck to form the sides of the cofferdam. Two sets of bracing consisted of 24-inch beams as horizontal wales and 12 and 14-inch WF beams as struts. The lower row of struts was placed so as to lie just above the tunnel floor. These struts were spaced at 10-foot centers. Struts in the upper row were spaced at 20-foot centers.

Excavation inside the cofferdam was carried on by Koehring 304 and 605 cranes using clamshell buckets. This portion of the excavation, reaching a maximum depth of about 44 feet, is thought to be the deepest open excavation ever done in this area. At both ends of the cofferdam the banks were sloped back about 1½ to 1. After dewatering, this excavation was accomplished by the two Koehring cranes using dragline buckets.

In order to permit cranes, tractors, trucks, and other equipment to work in the area without getting stuck, a plank road was constructed the full length of the tunnel barrel. This road was built of native rough 3 × 12 planks laid perpendicular to the road on both shoulders. The plank road was at about the level of the top of the tunnel. After approximately a year of service during the construction of the tunnel, this road was still keeping the equipment out of the mud.

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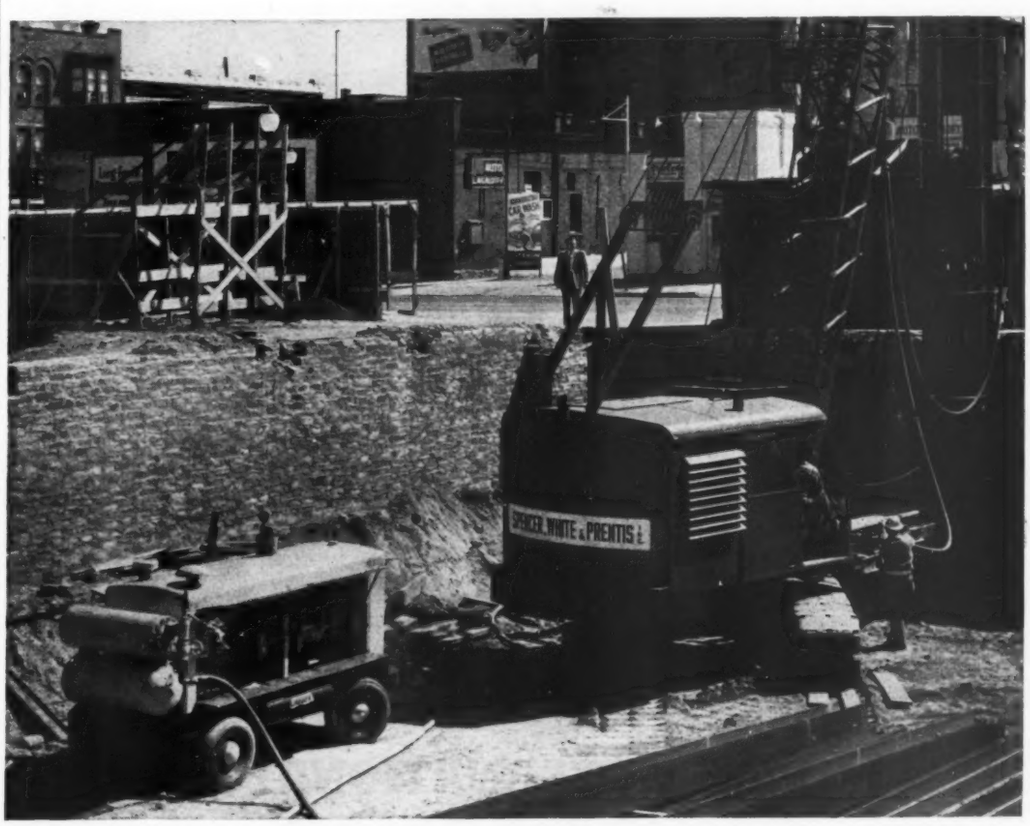

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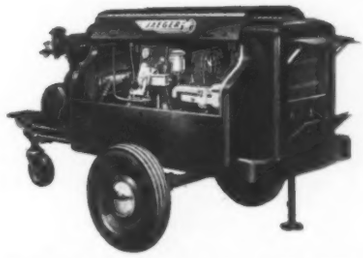
It's "smooth as steam" with a Jaeger Rotary

As Spencer, White & Prentis noted on this foundation job, the Jaeger Roto Air-Plus holds steady pressure even under the extreme fluctuations of pile driving. This is because Jaeger engineers have developed fast-acting, close-regulating controls never before available on air compressors. Demands are answered instantly. All speed modulation is smooth and stepless and there is never any over-run to cause racing of the engine. Your Jaeger Roto will also operate at slower speed than any other rotary, using less fuel, causing less wear and tear.

Ask your Jaeger distributor to demonstrate — or send for Catalog JCR5, which gives full details.



This Model "125" Roto is also available for smaller work

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A sand blanket was placed over the soft subgrade at the bottom of the excavation, and a 6-inch concrete slab was placed over the sand for a working platform. On this base, the heavy floor section, averaging 3 feet thick, was poured.

Traveling steel form

Using two 40-foot sections of Blaw-Knox steel form, Farnsworth started at the center of the tube section and worked both ways. After one section was placed, the form was collapsed and traveled on rails to the next section. Once the form was positioned, workmen placed the tile lining of the tunnel. Kraft paper was placed on the form, and special clincher-back tile was laid on the paper and covered with 2 inches of neat cement grout.

Concrete was dry-batched from a Butler batching plant set up on a rail siding about half a mile from the job. Cement and aggregates were delivered to the plant by rail. The Koehring 304 crane and clamshell unloaded the aggregates from cars and charged the bins of the plant. Cement was transferred by a Blaw-Knox screw and elevator. Ford batch trucks transported the dry batches from the plant to a Koehring 34-E Twinbatch paver at the job site.

Concrete was discharged from the mixer to an Insley 1-yard concrete bucket handled by the Koehring 605 crane. As the concrete was delivered to the forms, workmen compacted it with Jackson mechanical vibrators. The mix, designed for a compressive strength of 3,000 psi, utilized 1½-inch-maximum-size gravel aggregate and had a cement factor of 6 sacks per cubic yard. The mix was placed at a very low slump, and test cylinders frequently indicated strengths up to 2,000 psi in 3 days.

The top and sides of the tunnel barrel and the exterior faces of the ramp walls were waterproofed with four-ply membrane waterproofing covered with gunite. Occasionally, however, the weight of the gunite caused the membrane waterproofing to pull loose from the vertical walls before the sand backfill could be placed.

Under the main channel of the canal, the top of the tunnel was protected by a solid sheet of ¼-inch steel armor plate. Individual sheets were welded together into a 300-foot-long continuous solid cover over the roof of the tunnel and extending 2 feet down each side.

The interior of the tunnel section includes a 22-foot-wide two-lane highway with 15-inch-wide two-step curbs on both sides. A 5-foot sidewalk on one side is elevated above the roadway, and the ducts for ventilation are carried under the walk. Fresh air from ventilation structures at the ends of the tunnel is brought in through the ducts and blown into the tunnel through flues at curb elevation. Exhaust air from the tunnels is forced out the portals. Automatically controlled pumps in sumps at each of the portals remove water draining down the open ramps. Other automatic pumps operating from a sump at the deepest point of the tunnel remove water from washdown or seepage.

Personnel

General supervision of the project for R. P. Farnsworth & Co. was handled by A. J. Combe. Job superintendent was Harold Guillot, and his assistant was Charles Norris. Chief engineer for the contractor was Robert Bland. Palmer & Baker, Inc., New Orleans, the consulting engineer, was represented on the job by resident engineer Arthur T. Lewis and his assistant, I. D. Brayshaw. THE END

Deetz project manager for the Ohio Turnpike

The project manager for the 22-mile Eastgate Section of the Ohio Turnpike since February, Russell S. Deetz, has been appointed project manager for the 241-mile toll road. He will be responsible for operations and maintenance of the road and will set up his headquarters in the turnpike administration building at Stongsville as soon as the structure is made available.

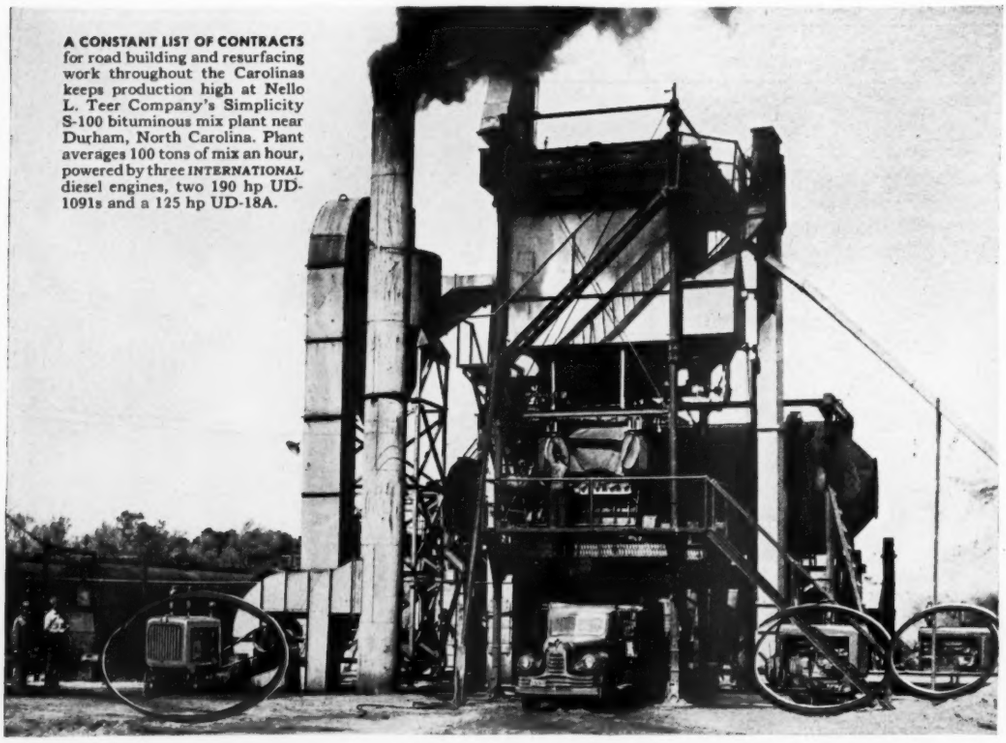
Mr. Deetz has been active in the Ohio Department of Highways almost continuously since he was graduated as a civil engineer from Ohio State University in 1935.

As project manager, he will supervise toll collection, traffic and safety, policing, patrons' services, and maintenance on the new road. Serving under him will be Noah H. Truax, maintenance engineer; Raymond W. Pecaut, equipment supervisor; and Paul L. Sehnert and B. H. Frasch, division superintendents for Divisions 1 and 2, respectively.

Burns & Roe organize industrial division

The engineering and construction firm of Burns & Roe, Inc., New York, N. Y., has created a new division which is offering engineering, design, and construction service for new or expanding plants, facilities, and equipment for industry. Known as the Industrial Division, it is headquartered in Baltimore, Md., and will serve clients largely in the Maryland, Delaware, Virginia, and the District of Columbia area.

Located at 4800 Wabash Ave., Baltimore, Md., the new division has Richard W. Black as manager.



A CONSTANT LIST OF CONTRACTS for road building and resurfacing work throughout the Carolinas keeps production high at Nello L. Teer Company's Simplicity S-100 bituminous mix plant near Durham, North Carolina. Plant averages 100 tons of mix an hour, powered by three INTERNATIONAL diesel engines, two 190 hp UD-1091s and a 125 hp UD-18A.

"You can't beat INTERNATIONAL DIESELS for continuous power"

Lugging power keeps output high, reports Asphalt Plant Superintendent

Keeping ahead of the many calls for bituminous mix keeps the Simplicity S-100 asphalt plant, owned by Nello L. Teer Company, Durham, North Carolina, busy most of the time.

Insurance against power break-down, with resulting production snarls, loss of time and money, is provided by three INTERNATIONAL diesel engines.

A 190 hp UD-1091 pulls the tower, another UD-1091 is on the dryer, and the third INTERNATIONAL diesel, a 125 hp UD-18A, pulls the fan.

According to Superintendent R. L. Bean, *"We've got* INTERNATIONAL *diesel engines on this job for one good reason: They just can't be topped for asphalt plant power. That's based on 14 years' experience with all types of power.*

"The INTERNATIONALS *develop continuous lugging power that keeps production to full capacity without undue engine wear.*

"Years of satisfactory service makes me a booster of INTERNATIONAL *Power."*

If your job calls for heavy-duty power, an INTERNATIONAL engine will do the job better.

There are 18 models ranging from 16.5 to 200 net horsepower in the new line of INTERNATIONAL Power, including five 4-cylinder carbureted power packages, seven 6-cylinder carbureted power units and six diesels in 4- and 6-cylinder models.

You get the benefit of more than 50 years' experience in pioneering and perfecting such features as valve-in-head construction, replaceable cylinder sleeves, induction hardened crankshafts, precision type replaceable bearings . . . and in diesels, all-weather gasoline conversion starting, single plunger injection pumps, positive torque control and micronic full-flow oil filtration. It will pay you to specify INTERNATIONAL for dependable power in your new equipment . . . and to repower with INTERNATIONAL when it's time to replace your present engines.

Call your nearest INTERNATIONAL Power Unit Distributor or Dealer today.

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Louisiana tunnel

(Continued from page 15)

hicular tunnel under the Harvey Canal, financed by the Louisiana Department of Highways and by Jefferson Parish, planned by Palmer & Baker, Inc., consulting engineers, Mobile, Ala., will carry the proposed West Bank Expressway. This road is planned as a link between the west bank approaches of the existing Huey Long Memorial Bridge and the new Mississippi River Bridge now under construction.

At present, State Route 2 follows the west bank of the river through Algiers, Gretna, Harvey, Marrero, and other towns, crossing the Harvey Canal in a busy industrial area on a bascule-type lift bridge located a few blocks from the tunnel site. This bridge is frequently open for long periods at a time. A lock at the junction of the canal and the Mississippi causes canal traffic to move slowly at this point. Completion of the new tunnel early in 1956 will eliminate traffic delays, permitting vehicles to move smoothly from one side of the canal to the other, regardless of operations on the canal.

Built in two cofferdams

Bidders were permitted alternates of floating the center section of this tunnel into place and sinking it in a prepared excavation, or constructing the tunnel in two sections in cofferdams which would close off half the canal at a time. The successful bidder, a joint-venture of R. P. Farnsworth & Co., Inc., New Orleans, La., Mason & Hanger, Silas Mason Co., Inc., New York, N. Y. chose the latter method.

Work on the $4,354,000 project started in June, 1954, and despite a number of setbacks and many difficulties, construction of the tube section from the center of the canal to the portals 540 feet on either side moved steadily ahead in the two large cofferdams.

The cleverly designed cofferdams are anchored by two sheet pile cells spaced 75 feet apart in the middle of the canal. Each of these cells consists of a 40-foot ring of Inland I-23 sheet piles, 65 feet long, driven into the mud bottom of the canal. These cells, common to the two cofferdams and referred to as common cells, are the terminus of a row of smaller cells extending to the shore to form the sides of the cofferdam.

The two common cells also serve as the anchors for a pair of heavy steel Pratt trusses which support the sheeting across the open end of the cofferdam down the center of the canal. The opposite end is closed by an earth dike. When the east half of the barrel is completed, the first cofferdam will be removed, but the common cells and trusses will be left in place. A row of sheets will then be driven against the opposite chord of the trusses, and a new cofferdam, similar to the first one on the east side, was constructed from the common cells to the west portal. This will provide an overlap the width of the trusses in which to join the two tunnel sections at the center of the canal.

Construction of common cells

Building the common cells and placing the trusses was a tricky operation. After the sheets of the common cells had been driven almost to water level, timber piles were driven down about 30 feet inside the cells to support the lower truss in its proper position. Some of the sheet piles of the cells were removed down to this elevation, providing slots for the ends of the truss which extended

(Continued on next page)

Excavation for the 596-foot west ramp is done by the open-cut method with a Koehring 304 dragline and Yaun lightweight bucket. A Ford truck hauls the material away. *C&E Staff Photos*

Another design feature for 'Jeep' Power Giant ruggedness

F-Head "Hurricane" Engine measures 24.81" from fan to flywheel — 30.76" from crankcase to carburetor intake.

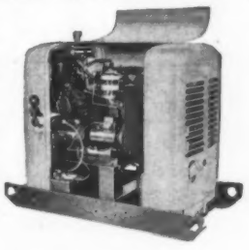
For Compact Power... 70 horses in a 2 ft. length

Here's an engine that's small in size but a giant in power . . . the smoothest of the "fours" through superior balance. Though displacing only 134.2 cubic inches, this Jeep POWER GIANT "Hurricane" turns out up to 70 H.P. and 115 lbs.-ft. maximum torque. The proven ruggedness of the POWER GIANT engine stems from such examples of Willys "Enginuity" as positive valve rotators; positive filtered crankcase ventilation; statically and dynamically balanced, counterweighted crankshaft and others.

POWER GIANT engines have world-wide distribution of parts . . . and costs are reasonable because of volume production. Write today for technical bulletins.

Versatile . . . Compact POWER GIANT Power Unit

For dependable auxiliary power that stays on the job day and night or for powered equipment where ruggedness is a must, choose a 'Jeep' Power Unit. It is complete and ready to go from radiator to flywheel. Any of the three 4 and 6 cylinder engines are available. Heavy gauge steel construction throughout. It's another rugged 'Jeep' product for every type of tough action.



Jeep

SPECIFICATIONS

Model	Jeep	Hurricane	Lightning
Cylinders & Head	4L	4F	6L
Cu. In. Displ.	134.2	134.2	161.0
Range Max. BHP	22-60	22-70	28-75
Range Max Speed	1200-4000	1200-4000	1200-4000

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into the cells. A big floating crane then picked up the 102-ton truss and lowered it onto the piles.

A slab of concrete 3 feet thick was cast in each cell to encase the lower truss. A fill of sand and shell was placed from this lower slab to the elevation of the second truss, and the second truss was set into place by a floating crane. This truss was also encased in a 3-foot slab of concrete in each cell. Concrete rings were cast at corresponding elevations in the adjacent two cells of the cofferdam to stiffen them and make them help the common cells resist the thrust of the trusses.

When the trusses were securely anchored in the common cells, the contractor drove a row of MZ-38 sheet piling against the outer chord of the trusses to form the bulkhead which closed the 75-foot opening between the common cells. This, and most of the other sheet piling rented from L. B. Foster, Pittsburgh, Pa., was driven by Vulcan 50-C steam hammers handled by Lima 802 and Bucyrus-Erie 54-B cranes.

Cofferdam bracing

The smaller cells between the 40-foot common cells and the shore form part of the cofferdam. Their primary purpose is to form stable, tight, cofferdam walls so that the trench can be de-watered and the tunnel constructed in the dry. They also serve secondary purposes: to strengthen the portion of the cofferdam exposed to the canal against possible damage by collision or wave action, and to provide an access roadway along both sides of the excavation which cranes and other machines could use.

These smaller cells were not circular in section, but straight on three sides. On the front face, the junction between two adjacent cells was made with a Y-23 section. The front face of the cell then took the shape of an arc ending in another Y at the junction with the next cell. The dividing wall between the cells started with the inward leg of the Y and ran straight back, terminating in a T section at the junction with the rear wall. The rear wall was a straight line from one T to the next. Thus, this cofferdam was a series of similar cells instead of the usual alternate circular cells with closing loops between. The cells measured 13 feet 4 inches wide across the face and 24 feet deep.

Soldier piles, consisting of 36-inch WF beams as long as the sheet piling of the cofferdams, were driven immediately in front of each Y-pile in the front row of the cofferdam. Reaching completely across the 75-foot span of the cofferdam between these soldier piles were 24 and 36-inch WF struts braced laterally with 4 × 4 × ½-inch angles. The lower row of struts was placed just one foot above the top of the tunnel and carefully followed the tunnel grade. Some of the other struts are at the top of the piling, and others were spaced between piling as the conditions required.

Inland from the edge of the canal, the cofferdam has the same type of bracing, soldier piles, and front row of sheeting. However, the cellular type of construction stops at the edge of the water. The sheet piles range from 45 to 65 feet long, and all were driven deep enough to have a toehold of at least 8 feet below subgrade elevation.

After the cofferdam had been completed and excavation was progressing inside, there were several cases of apparent failure of the sheeting interlock. Material from behind the sheeting flowed into the cofferdam, giving evidence of the break by a sag in the ground. When these failures occurred, the contractor was faced with the difficult job of adding a complete new loop which would close off the damaged section and tie into the adjoining sections.

Underwater excavation

Excavation within the cofferdam was carried on under water by several rigs, including a Lima 604 with a 1½-yard Blaw-Knox clamshell bucket and a Koehring 605 crane and clamshell. As the material was clammed down to the elevations at which struts were to be placed, the cofferdam was unwatered by two 10-inch pumps. Once struts were in position, excavation was continued under water to subgrade elevation, approximately 6 feet below the bottom of the tunnel section.

Since the alluvial delta soil did not slough or cave like sandy materials, ridges of clay were left standing under the struts, close to the sheeting, and in other places not reached by the clamshell. To remove these ridges and knock them down so that the bucket could get at the material, the contractor rigged up a special jetting device.

Water for this device was drawn from outside the cofferdam by a Hale 5-inch high-pressure pump, and pumped through two 2½-inch hoses to a 3-inch jet pipe. At the lower end of the jet pipe were five nozzles. Four of these shot out horizontally in four directions, and one shot straight down. A Koehring 605 crane handled the jet pipe, moving it along the sheeting and struts, and raising and lowering it as necessary. An airlift powered by a Worthington 500-cfm compressor was also used to pick up some of the material close to the

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In a tricky tying-in operation, a Lima 802 crane and Vulcan 50-C steam hammer drives the sheet piling for the east cofferdam.

sheeting and transfer it to a point where it could be more easily reached by the clams.

When the excavation had been completed down to grade, untreated timber piles were driven in the bottom to provide support for the tunnel. Some additional piles were also driven to provide hold-down for the tremie seal, which would be buoyant if subjected to full hydrostatic pressure. This piling was driven deep under water by a 40-foot follower and the Vulcan No. 1 modified hammer in a set of telescoping leads, handled by a 70-ton skid-rig pile-driver which traveled on a gantry straddling the cofferdam.

The 2 feet of clamshell leveling course deposited under water on the mud bottom was followed by a 3-foot tremie concrete seal over the entire 75 × 540-foot area. When the tremie seal had set, the cofferdam was dewatered. From this point on, work continued in the dry.

Concrete construction

A 12-inch leveling course of 2,500-psi concrete was placed over the tremie seal before work started on the structural slab of the tunnel. When the floor slab was in place, two sets of Blaw-Knox steel forms were mounted on rails on the slab to form the walls and roof of the tube. Starting at the center of the canal, these 40-foot sections were rolled along from one pour to the next, finishing at the east portal. This procedure was repeated in the west cofferdam to complete the tunnel.

The double-barrel tunnel is a rectangular section 65 feet wide and 22 feet high. Each barrel contains a 22-foot roadway bounded by two 15-inch double-step curbs and a 4½-foot elevated sidewalk along the outer side of the roadway. Space under the sidewalk will be used as a duct carrying fresh air from the ventilating towers into the tunnel. Air will be exhausted from the tunnel through the portals.

The barrel of the tunnel is 1,080 feet long, portal to portal, although the canal itself is only 300 feet bank to bank. Under the canal the top of the tunnel is 24 feet below the water surface. The roadways go down from both ends at five per cent grades and have a 300-foot vertical curve at the center. Open ramps extend both ways from the portals; the east ramp is 524 feet long and the west ramp, 596 feet.

The open ramp sections carry two 22-foot roadways with 9 × 18-inch curbs on the outside and a 4½-foot median between the lanes. There is no sidewalk on the ramps; pedestrians reach the tunnel sidewalks by stairways at the portals.

The ramps were excavated by open-cut methods with the aid of Moretrench wellpoint systems. A pair of Koehring 304 cranes with Yaun lightweight dragline buckets loaded much of this excavation into trucks hauling to waste areas. Finish grading was handled by a Caterpillar D4 tractor with front-end loader and a Caterpillar 212 motor grader. Untreated timber piles were driven in the areas below mean gulf level and treated piles were driven in the higher areas.

Over the piles, a 12-inch leveling course of 2,500-psi concrete was poured ahead of the actual construction of the ramp sections. These consist of a deep base slab supporting cantilever retaining walls. The heavily-reinforced walls batter from 1 foot thick at the top to a maximum of 3½ feet at the bottom of the structure.

A plant set up beside the canal near the job site dry batched the concrete, and Koehring Twinbatch pavers mixed the material. Most of the concrete was placed by cranes and buckets, and daily pours averaged around 600 cubic yards.

Walls and roof of the tunnel barrel, as well as walls of the ramps, are waterproofed with 4-ply membrane waterproofing. The section of the barrel under the canal is armored with ¼-inch of steel armor plate anchored to the leveling course and base slab on both sides and welded into a continuous sheet over the top and sides of the barrel the complete 300-foot width of the canal. A gunite covering is placed over the armor plate.

Personnel

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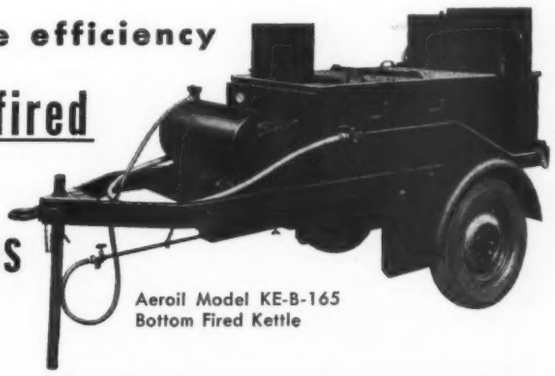

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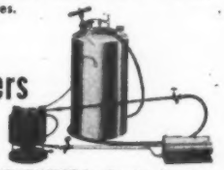

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the joint venture is general superintendent A. J. Combe. Job superintendent is Thomas Sellers, and chief engineer is Charles Sloan. Representing Silas Mason Co. in an advisory capacity is R. B. Jewell, a vice-president of the firm. Also helping on the supervision are assistant superintendent Marvin Amacher and concrete superintendent James T. Dubroca.

Resident engineer for Palmer & Baker, Inc., is Arthur T. Lewis, who is assisted by J. H. Lucas. The consulting engineers supervise the construction, but the Louisiana Department of Highways is also represented on the job by project engineer W. E. Wakefield, Sr., who acts as an advisor and observer.

THE END

Bank report surveys projected road financing

A combination of pay-as-you-go and borrowing is suggested as a means of financing improvements to the nation's highway system in "America's Road Problem," a 24-page booklet prepared by the economic research department of The Chase Manhattan Bank.

The report estimates that existing sources of funds would take care of $47 billion of a $101 billion highway program, leaving $54 billion in highway funds still to be realized. The booklet contains brief explanations of the Administration and Gore bills in Congress, which would provide $22 billion in federal aid during the next ten years. According to the bank's analysis, state and local governments may be forced to fall back on increased highway-user taxes for much of the revenue needed to raise the remaining $32 billion needed to finance such an expanded program, and points out five methods by which this sum might be secured. These would involve an average 2-cent increase in the gasoline tax, higher registration fees, increasing the toll-road system, ending diversion of highway-user taxes, and continuing the use of general revenues and bond issues at their present level.

The booklet also discusses the problem of borrowing to finance roads, financing improvements out of current tax revenues, and toll-road financing. A limited supply of the booklets is available, and individual copies may be obtained without charge by writing The Chase Manhattan Bank, 18 Pine St., New York 15, N. Y.

Recommend deepening of Great Lakes channels

A recommendation that channels connecting the Great Lakes be deepened to meet the needs of commercial navigation is contained in a report transmitted to Congress by the Secretary of the Army. The report, based on a study by the North Central Division of the U. S. Army Corps of Engineers, calls attention to the fact that the St. Marys River, Straits of Mackinac, St. Clair River, Lake St. Clair, and the Detroit River have controlling depths of 25 feet for downbound traffic and 21 feet for upbound traffic, permitting vessels with drafts of 22.3 and 18 feet, respectively, to use the lakes.

Newer vessels, which draw 26 feet of water, the report states, are now forced to load at reduced drafts and to operate uneconomically. Deepening the channels to 27 feet would save an estimated $10 million yearly, the report states. This figure is based on an average tonnage of 88,300,000 per year. The cost of the project would be about $110,327,000, and the yearly maintenance bill would come to $200,000.

New-type fluid drive

■ A 12-page bulletin offering full-color illustrations and detailed cutaway drawings on its Flexidyne drives and couplings is available from Dodge Mfg. Corp., Mishawaka, Ind.

The literature fully explains the Flexidyne dry fluid drive, which employs heat-treated steel shot instead of a fluid. When the motor is started, a measured amount of the shot, contained in the housing, is thrown to the perimeter of the housing and wedged between the housing and the rotor which transmits power to the load. After a momentary slip between the housing and the rotor, the two become locked together and achieve full load speed.

This process, the bulletin points out, facilitates smooth starting, prevents slip at normal operating speeds, protects against overloads, and permits operation of the engine with a minimum of current draw. The unit may be used on both gas and diesel engines.

Flexidyne drives for V-belt drive from motor to load, and Flexidyne couplings for direct shaft-to-shaft connection are also illustrated. The bulletin describes the coupling as a low-cost compact unit for providing smooth operating characteristics and a flexible connection. The Flexidyne coupling is adaptable to a wide variety of motors, engines, and driven machines.

Complete tables give specifications and permit selection of the correct size of Flexidyne drive, V-belt drive, or coupling for specific applications.

To obtain Bulletin A-640 write to the company, or use the Request Card that is bound in at page 18. Circle No. 722.

Form pins are driven swiftly and cheaply with this unbeatable combination—a Schramm Form Pin Driver operated from a SCHRAMM STANDARD PNEUMATRACTOR, driven right to the job. Two pin drivers can be operated simultaneously if desired.

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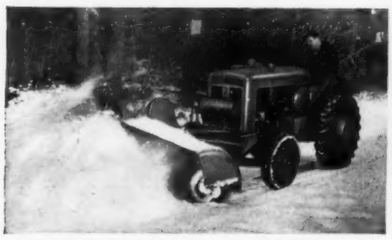
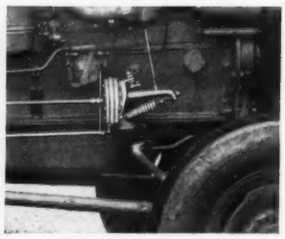
The cost of the STANDARD PNEUMATRACTOR is low; you get the use of a 125 c.f.m. air compressor *plus* a light tractor for less than the cost of many conventional two wheel mounted compressors alone. It's cheaper to operate and maintain, too. Any engine service man can service the PNEUMATRACTOR with very little instruction.

Complete details of this versatile machine are yours for the asking. Request Catalog 5545. Or ask your local Schramm dealer for a demonstration—he's listed in the Yellow Pages of your Telephone Directory.

Pneumajack, mounted on a STANDARD PNEUMATRACTOR, does a variety of jobs from drilling for mud jacking to production drilling.



Equipped with a Rotary Sweeper, the STANDARD PNEUMATRACTOR is ideal for sweeping leaves, dust, snow or light dirt. Hydraulic drive, controlled by operator, makes rotation of brush independent of speed of PNEUMATRACTOR.



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The Zerex anti-freeze analyzer makes it possible to determine in a matter of minutes if an anti-freeze solution is safe for another season's use or if it should be discarded.

Antifreeze analyzer checks liquid for re-use

■ An antifreeze analyzer, developed at Du Pont's Anti-Freeze Laboratory in Wilmington, Del., indicates accurately and quickly which antifreeze solutions are safe to hold over for another season, and which have become corrosive and should be discarded. The analyzer can only be used with Zerex—Du Pont's ethylene glycol-base antifreeze.

Although "reserve alkalinity" is built into the Du Pont antifreeze through chemical rust inhibitors, any permanent-type antifreeze can turn acid in the cooling system after one season's use. Air and exhaust gases seeping into the system break down the glycol, forming harmful acids. Eventually, the inhibitor in the antifreeze becomes depleted, and the acid solution can thereafter cause severe corrosion of the engine block and radiator metals.

The damage that can be caused by one corrosive solution could cost more than fresh antifreeze for a whole fleet. Furthermore, by making quick and accurate testing possible, the analyzer saves good antifreeze often discarded because of doubt as to its condition.

Normally it takes expensive time-consuming laboratory procedures to tell whether a used antifreeze solution still has any inhibitor left. With this practical antifreeze analyzer, the reserve alkalinity of any Zerex-water solution can be determined accurately, right on the spot. The kit can be used by maintenance men following printed instructions, and testing can be done in two or three minutes.

The antifreeze analyzer comes complete with a Zerex hydrometer, graduated flask, indicator liquid, 100 control acid capsules, and a glass stirring rod.

For further information write to E. I. du Pont de Nemours & Co., Wilmington 98, Del., or use the Request Card at page 18. Circle No. 660.

Cummins appoints Sears

The Greak Lakes region of Cummins Engine Co., Inc., Columbus, Ind., will be managed by B. C. Sears. With the company since 1946, Sears was regional manager of the Rocky Mountain region before his present appointment.

Central Ohio Steel and Hercules merge

Operations of Hercules Steel Products Corp., and Central Ohio Steel Products Co., both of Galion, Ohio, were combined last month following the merger of the two companies. The new company, Hercules Galion Products, Inc., has David Van Alstyne, Jr., former board chairman for Hercules, as chairman. Paul Monroe of Hercules is president, and Oliver C. Henkel of Central Ohio, is senior vice president of the firm. Other officers are Alfred Dangler, Jr., executive vice president, and Robert J. Melish, secretary and treasurer.

The new firm and its subsidiaries manufacture dump bodies and hoists, hydraulic lift gates, and a number of other products used by the construction industry.

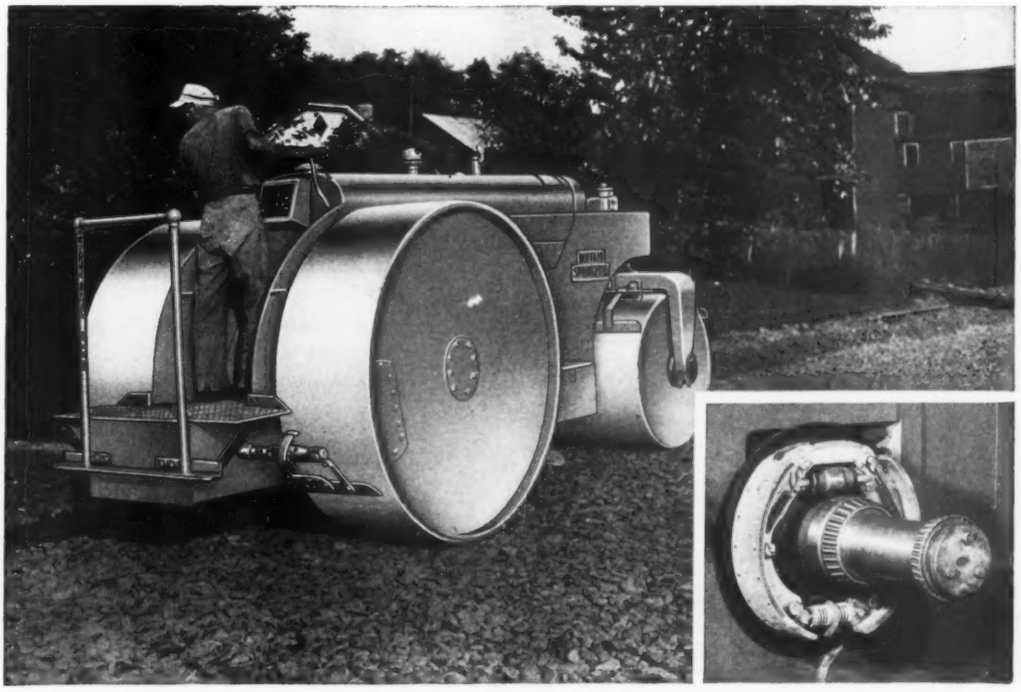
Data on hand winches

■ A 17-page catalog describing its line of all-steel hand winches is available from Beebe Bros., 2739 Sixth Ave. S., Seattle 4, Wash.

This fully illustrated booklet gives complete information on Beebe 2, 5, and 15-ton winches in eight drum sizes. Also included is information on how to convert hand winches to power operation and back again to hand operation.

Full specifications and a complete price list are given.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 691.



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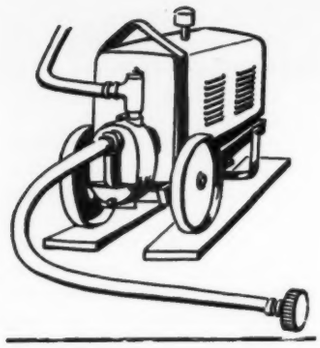

This is the sixth in a series of articles consisting of selected excerpts from the 1,280-page book, "Moving the Earth", by Herbert L. Nichols, Jr., published last March. Priced at $15, the book is available through the Book Order Department of CONTRACTORS AND ENGINEERS, 470 Fourth Ave., New York 16, N. Y. A copy may be ordered on approval by circling No. 1 on the Request Card at page 18. Approval copies will be billed at $15 plus postage.

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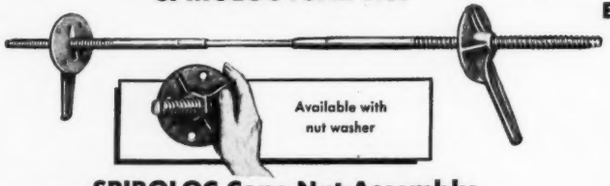

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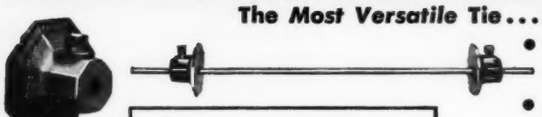

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Both surface and subsurface water may be removed by a seasonal drop in ground-water level; by drainage through ditches, pipes, or siphons, by pumping; by walling off or diverting the source of water; or by combinations of two or more of these methods.

The purpose of dewatering may be to dry out swamps or other wet areas; to stabilize slopes, foundations, and road subgrades; or to facilitate excavation for any purpose.

All of these except the last are accomplished chiefly by drainage—that is, by causing the unwanted water to flow away through artificial and natural channels or conduits. Pumps may be used to remove water from a sump or low point of a drainage system.

Surface drainage may consist of disposal of water from rain or melting snow, or lowering the water level in ponds, ditches, or swamps. It may use open channels, conduits, or both. The water is usually led to a natural stream or body of water.

Such drainage may be accomplished by deepening, enlarging, or straightening and protecting existing stream beds; by digging artificial channels; or by installing underground pipes or tunnels.

Pipe

Drain and culvert pipe is made in sizes with inside diameters ranging from 3 inches to 15 feet. Materials include concrete, tile (vitrified clay), transite (cement-asbestos), and corrugated iron or steel.

Concrete pipe may be plain or reinforced, and the joints may be butt, bell, slip-joint, or gasketed. Its size ranges upward from 4 inches inside diameter. Lengths are 2, 3, 4, and 8 feet.

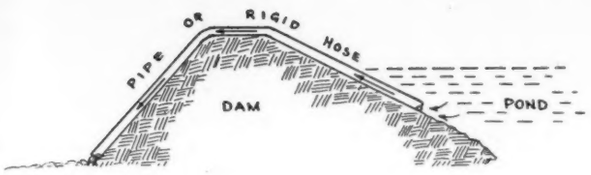
Butt (open) joints are used for land tile.

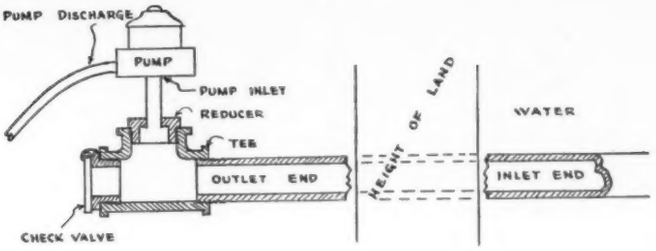
Bell joints are resistant to chipping, will hold the pipe against slipping downhill and—if the joints are open—will reduce flow or seepage of water along the outside of the pipe. However, they are difficult to lay.

Slip joints are easier to handle and to lay because of the uniform outside diameter.

Pipes over 12 inches inside diameter are usually reinforced, and this construction is required on most jobs because of its additional strength.

Concrete may be attacked by water carrying certain alkali salts or other chemicals. It is subject to erosion from fast-flowing water carrying abrasive material, and may scale or disintegrate slowly from weathering. Structural difficulties may arise from the comparative weakness of its





A siphon, above, and priming pump at right.

joints. However, under a wide range of conditions, it is long-lived enough to be considered a permanent installation.

Corrugated pipe is of standard, helical, or heavy-duty construction. In cross section it may be round, elliptical, flattened, or arched.

Standard pipe is made up of galvanized plates or rust-resistant (but not rustproof) iron or steel, 16 gage to 8 gage, which are deformed with parallel corrugations or ripples. These are usually 2 2/3 inches from crest to crest, and ½ inch deep. They increase the strength of 16 gage about eleven times, and of 8 gage about 3½ times.

The corrugated plates are rolled into cylinders slightly more than two feet long, which are lapped and riveted together. Additional cylinders are lapped over the ends and riveted to obtain the desired length.

Several gages are available for most pipe sizes to permit varying strength to suit requirements.

Inside diameters of standard riveted pipe range from 6 inches to 8 feet. Lengths may be made up in any multiple of 2 feet, but transportation problems usually limit single pieces to 20 to 24 feet.

One end of an end section of light-gage pipe may be lapped around a reinforcing ring.

Pieces can be made up with beveled or skewed ends.

Pipe sections are fastened together on the job by band collars. These may be one-piece or two-piece. One-piece bands are usually fastened by compression bolts only. Two-piece bands may be riveted or bolted to the sections. Because of allowance for overlap, each pipe section is 1½ inches longer than its nominal length. Each joint adds the width on one corrugation to over-all length.

Features of arched pipe are lower clearance, greater bottom capacity, and less tendency to settle in soft ground.

Culvert design

A culvert may be made of almost any structural material. Reinforced-concrete or corrugated-metal pipe, and poured reinforced concrete are standard for highways and railroads. Tile and plain concrete may be used for light service. Log and timber construction are usual in pioneer and military roads.

Water passages (barrels), may be round, arched, rectangular, or in special shapes. More than one may be used.

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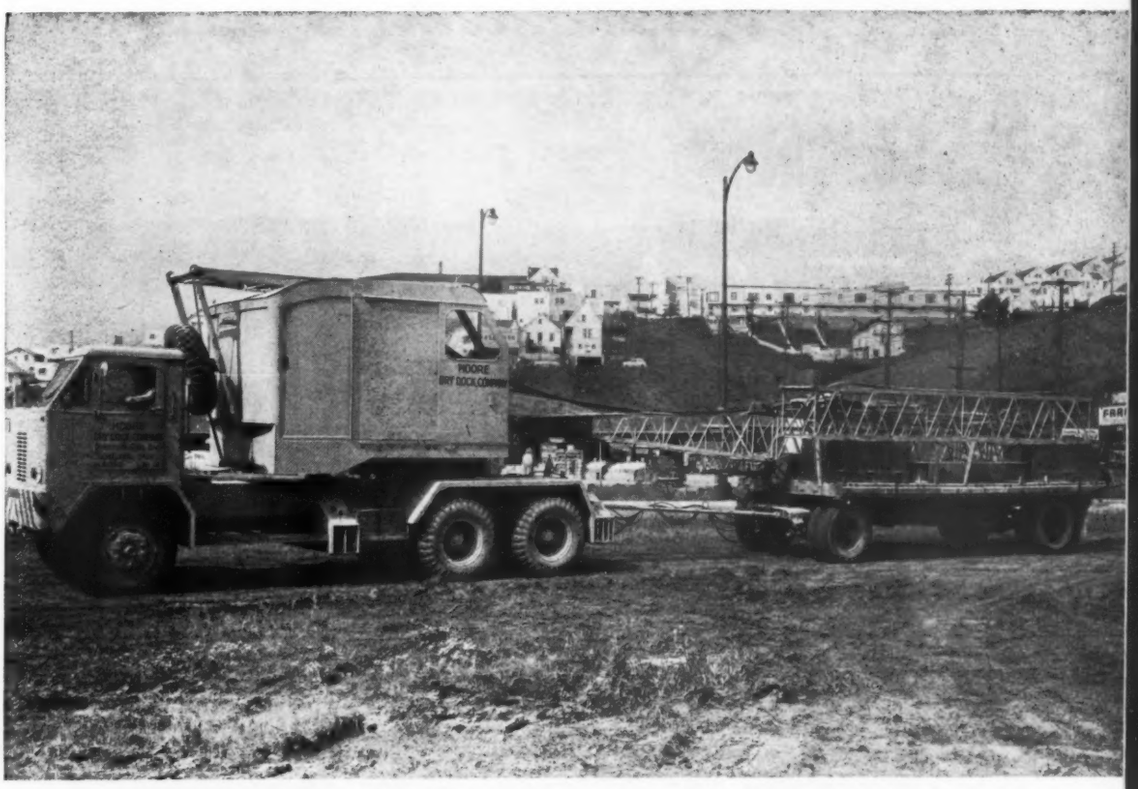
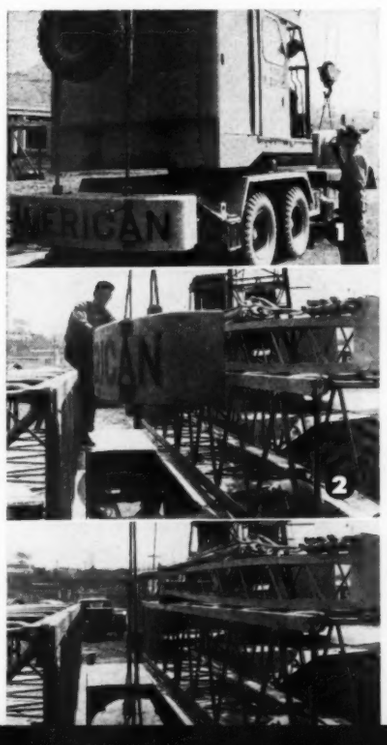
For more facts, circle No. 521 →



READY TO ROLL, the stripped-down American 300 Series Truck Crane owned by the Moore Dry Dock Company can travel over any highway in California. By using an ingenious "possum belly" trailer, the unit's total weight is distributed over five axles, meeting road limits easily.



"STRIP-EASE" SOLVES HIGHWAY WEIGHT PROBLEM

Highway weight restrictions, which can tie up heavy equipment on one job when it is needed on another, plague contractors in many states. Fortunately for American owners, the American 300 Series Truck Crane can be "stripped" speedily and easily. The Moore Dry Dock Company of California, for instance, has found that they can load the boom and counterweight on their specially-designed trailer in a very short time. Thus, by dividing up the weight, the unit can meet all legal axle load limits for any highway in the state. This fact means that the powerful, versatile crane can be hustled from job to job without the delay of obtaining special permits, saving time and money for Moore Dry Dock.

SMOOTHLY AND EASILY the American 300 Series Truck Crane uses its own mechanism to remove its counterweight, (1). Then, it lifts the counterweight, (2); and lowers it into the "belly" of the trailer, (3). With the boom lowered into its cradle on the top of the trailer, the American Crane is ready to move to its next job.

For generations, high-production American products have been first choice on the world's biggest and toughest jobs. For full, factual information on the many advantages offered you by efficient American Truck and Crawler Cranes, see your American Distributor or write American Hoist & Derrick, St. Paul 1, Minnesota.

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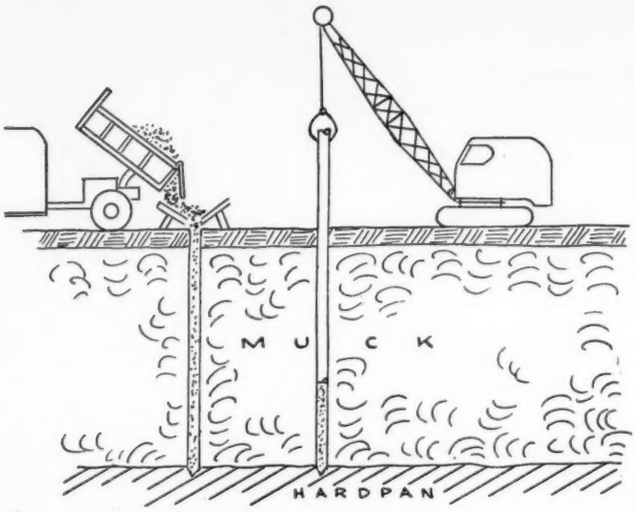
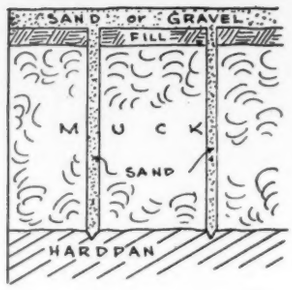
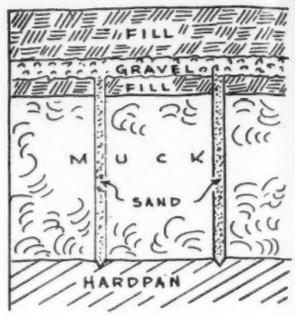




A vertical sand-drain installation.



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A culvert serves to carry the water from a drainage area or watershed of a certain size. This water includes surface runoff of rain and melted snow and ice, and whatever ground water comes to the surface within the area.

The size of culvert openings should be determined by the amount of rain which is likely to fall in the watershed within a certain period, and the character and slope of the ground so far as it affects the percentage of water that will run off, and the speed of its flow.

Additional factors to consider are the opening required by normal stream flow before it rains; the extent to which the opening may be restricted by silting; the velocity of water in the culvert; the extent to which water not passed through it can pond against the embankment before overtopping it or damaging property behind it by flooding; and the probable damage from overtopping.

It is desirable to lay the culvert on the floor of the natural channel, on the original ground surface, or in a smoothly dug ditch. This gives firmer support than fresh fill. Inequalities in channel or ground are smoothed by cutting off ridges and tamping fill into hollows.

Vertical drains

Vertical drains of sand or porous soil can be used to move water up or down. They are often made by drilling or blasting holes in an impervious layer lying over a pervious one.

Vertical drains, through which water rises because it is displaced by the weight of fill, are used to stabilize deep layers of saturated peat. Such soils may contain 50 per cent or more of water, and behave like viscous fluids under pressure. Fills placed on them sink, owing partly to water being squeezed out of the mud and partly to the mud being displaced to each side. This settling of the fill may continue a great many years, and become so uneven as to make pavements or other structures on the fill unusable.

The squeezing out of water may be accelerated, and the sideward movement of mud practically eliminated, by making vertical holes in the mud, filling them with clean sand, and connecting their tops with a drainage system. The fill is then placed and its weight causes the water to enter the sand columns and rise into the drains. If the columns are properly spaced, sufficient water will be re-

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(Continued from preceding page)

moved to stabilize the mud enough to carry the intended load.

This technique is comparatively new and has not yet been reduced to a formula. Part of the fill may be placed on the swamp, and then the holes made by sinking a hollow-walled pipe through jetting with water and compressed air or by driving a hollow pipe with a detachable head. In either case, when the tube has reached the bottom of the soft layer, it is filled with sand and pulled, leaving the sand in the hole. Hole diameters of 16 to 24 inches are commonly used, with spacing varying between 8 and 22 feet.

If the tube is pulled by conventional methods, the sand may stick to it and be raised sufficiently to allow mud to enter crevices and interrupt the drainage. This may be avoided by attaching an airtight head to the tube after the sand has been placed, and pumping compressed air between the head and the sand. This raises the tube but exerts an equal downward force against the sand and holds it in place.

The tops of the columns may be drained by spreading a blanket of clean gravel or sand, a foot or more in depth, over the whole area, or by connecting the columns with tile or rubble drains. If the fill is all gravel, a drainage layer may not be needed.

Settling may be still further speeded by placing more fill than will be required for final grade. The extra weight will squeeze the water out of the mud more quickly. When settlement is judged to be complete, the extra fill is removed.

Excavation

It is desirable to remove surface and ground water from areas to be excavated, but the cost may exceed the advantages gained.

The seasonal fall of ground-water level may be quite considerable in areas having dry summers. Some places which are so wet in winter and spring as to be very expensive to work, may become dry to a depth of from 5 to 30 feet. Permanent swamps may develop sufficient crusts to allow movement of machinery.

Such changes are not uniform, as a wet season may keep water levels abnormally high while an exceptional drought will cause extreme or unseasonable lowering.

When it can be arranged, it is obviously good practice to undertake wet excavation in a dry period, as any reduction in either mud or unwanted water will reduce costs. The economy is greatest in work in marshy areas and in shallow excavations, but may be noticeable even in deep work.

Pumping

Dewatering of excavations commonly requires use of pumps.

If the water is small in volume or contains a heavy load of mud or other solids, a diaphragm pump is preferred. A centrifugal pump is needed for larger quantities.

A centrifugal pump should be placed as near the water level as possible. More energy is used pumping water over a high bank than over a low one, but the total lift may be largely determined by the job. However, these pumps will push the water more efficiently than they will pull it, and much better output will be obtained by keeping the suction line short.

A standard centrifugal pump is built to handle solid water, and pumps air with difficulty. When the pump and inlet hose are empty, the pump must be filled with water (primed) before starting, and will then work for a while slowly drawing the air out of the inlet pipe. When the water is sucked into the pump, its efficiency rises abruptly. If air is permitted to enter the intake, the pump will lose its grip and again have to slowly work up sufficient vacuum to lift the water into it. This process is fairly quick in new pumps; in worn pumps the process is slow if the lift is at all high.

Air leaks on the inlet side of the pump will seriously hamper operation. Threaded pipe connections should be treated with pipe dope and tightened firmly; bolted ones should have both faces of the coupling clean, an application of gasket and sealing compound, and bolts tightened down well. Inspection ports should be well seated and sealed, and gages and plug fittings should be doped and tightened. If the shaft from the engine goes through a packing box, the packing should be tight enough so that there will be no drip when the pump is stopped.

Even small air leaks may prevent a pump from picking up water; large ones which develop while the pump is running may cause the unit to lose its prime. A pump may also fail to work because of a clogged inlet pipe. It is very desirable to keep a vacuum gage on the inlet side, as it will indicate the conditions of the pump. Low vacuum indicates air leaks, lack of sufficient water in the pump, or worn or broken impeller and wear plates. Abnormally high vacuum indicates a plugged intake line.

If the vacuum is low, but no leaks are found, wet clay should be plastered over all joints and possible cracks or fissures. This makes a good temporary seal for small leaks. The pump casing should be checked for

Austin Overshot Loaders dig, screen and load in one low-cost operation

With a grizzly screen attachment, the Austin Loader can dig, screen and load pit run gravel into trucks ready for spreading on roads without additional screening.

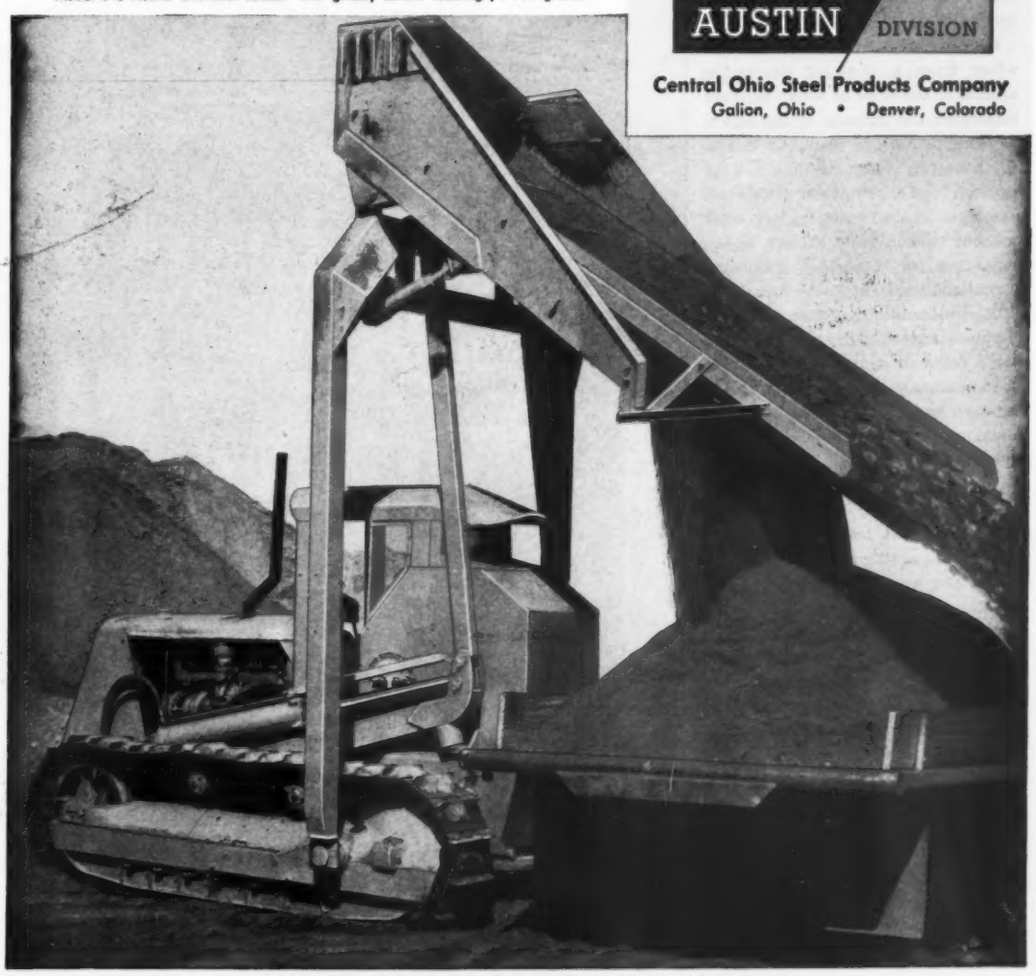
The Austin scoops up as much as 4 cubic yards of gravel—then, as the Loader raises overhead and dumps, correctly sized material drop through the screen into the truck. Oversize drops off the screen, beyond the truck. Austins also screen and load riprap, coal and similar coarse materials quickly and economically.

Increase your production . . . cut your labor costs and eliminate the need for separate screening equipment . . . use Austin Overshot Loaders to screen and load material on your operation. Or, use the versatile Austin to load trucks, wagons or rail cars—to mix or stockpile—to excavate or bulldoze—to load logs.

Austin Overshot Loaders are available in 5 models for installation on Caterpillar D2, D4, D6, D7 and D8 Tractors. Bucket capacities from 1 to 4 cubic yards. AA-1524

Ask your Caterpillar—Austin Dealer for a demonstration

Model 6-C Austin Overshot Loader with grizzly screen loading pit run gravel



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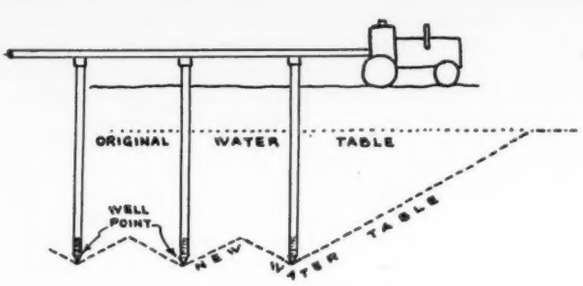
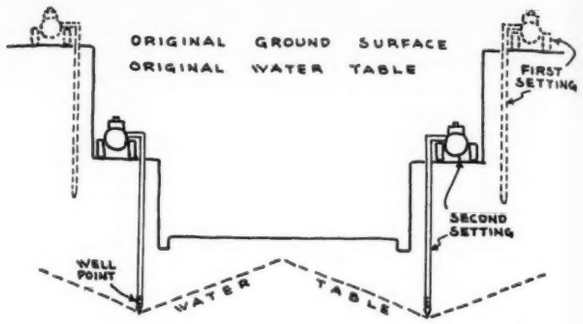




Wellpoints.

cracks and the packing tightened.

Wellpoints

A wellpoint pump is a centrifugal pump with rather close-fitting parts, and often with an auxiliary air-vacuum pump. It can work efficiently in spite of a fairly high proportion of air in the intake lines.

A wellpoint is a section of finely perforated pipe that is sunk into the ground by jetting, driving, or drilling. It is attached to ordinary iron pipe which rises to the surface and is connected by other lines to a pump, which usually takes care of a number of points.

When the pump is running, the ground water in contact with the wellpoint is drawn through the holes or slits into the pipe and pumped away. The holes are so small that only very fine particles of earth will pass through them. The continued suction gradually removes all such particles from the area immediately around the pipe, leaving the coarser ones. This makes a porous screen with an outside area several times larger than that of the point, and improves its gathering efficiency.

Each wellpoint will remove ground water from a cone of depression around it, the slope of which depends largely on the porosity of the soil.

If wellpoints are placed in a line so that their cones overlap, a continuous band of soil can be dewatered.

A ditch could be dug in this band without encountering ground water, regardless of otherwise saturated conditions throughout the area.

The wellpoints may also be set in a square pattern to dry up the ground for a cellar or similar excavation. It is sometimes possible to dewater such an area by using points as a curtain drain where the source and depth of the water are known.

In order to eliminate mud difficulties, the points should be placed deep enough so that the excavation will not reach capillary water standing above the artificially lowered water table.

In deep excavation, it will be necessary to reset the wellpoints and pumps on successively lower benches as the digging progresses, because of the inefficiency of high suction lifts. This may be done by starting the excavation oversize so as to leave a shelf at the bottom of each cut for placement of the pumps and lines.

Wellpoints are most efficient in porous soils and will ordinarily not give good results in clay soils. In peat, the points are jetted down and stand dumped in the hole around

(Concluded on next page)

CP equipment is

them to increase contact area.

Proper use of wellpoints involves considerable work in placing, connecting, and moving points, and pumping is usually on a 24-hour-a-day basis for the duration of the job. In addition, considerable experience is desirable in order to avoid wasted time and possible failure to keep the job dry. It is generally advisable to subcontract this work to specialists.

An excavation area may be predrained by sinking a number of shafts, lined with timber or pipe, and pumping from the bottom. The pumps used are usually small ones with electric motors. The shafts are more widely spaced than wellpoints and can be used to much greater depths. Drilling and lining is expensive.

Deep-well pumps, of the piston or the jet type used for water supply, may be used if equipped with good sand filters.

Shallow layers of soil may be dried by digging a deep hole in the area and keeping it pumped out. Effectiveness and promptness of drying may be improved by a system of ditches draining into the sump. These may run along the outside edges of the site and into the interior in any convenient pattern.

This is an excellent and inexpensive way to dewater a swamp before digging a pond, unless the flow of water into the area requires an excessive amount of pumping during the drying process.

Jetting

Jetting with high-pressure water or, less commonly, compressed air is used in making deep narrow holes for setting piles, installing vertical drains, obtaining soil samples, and for various other purposes.

Pressures required range from a few pounds for penetrating loose fine deposits to several hundred for tough clays.

A single pipe with a nozzle or reduction in size at the tip may be used in probing for rock or other obstructions. The tip reduction increases the velocity of the water and makes plugging less likely if it is forced into soil which the water will not cut.

Single pipe holes are irregular in shape, as the exhaust water and spoil rise around the pipe and will erode channels along the path of least resistance.

A better system is to use several water jets around the rim of a pipe so that washings can rise through the pipe to the surface. Water may be supplied by separate pipes, or by welding one pipe inside another and leaving a space between them for passage of water from an upper inlet connection to the bottom jets.

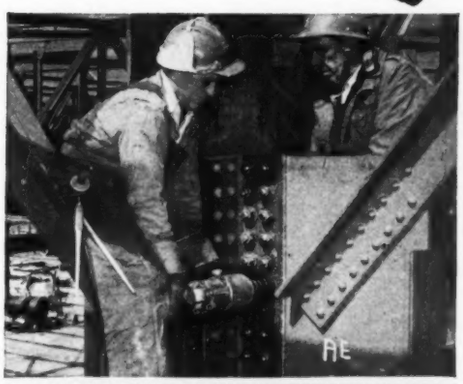
There should be at least three jets, and preferably four or more. They must be evenly spaced around the circumference to prevent the pipe from drifting sideward toward the most effective erosion.

The pipe should be handled by a crane or some other type of hoist.

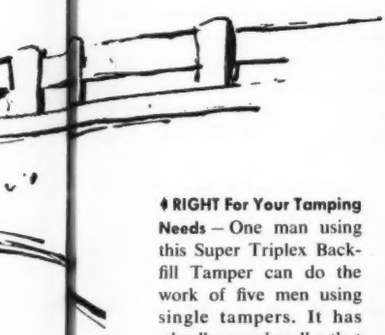
The lower end is sometimes fitted with teeth, and is lifted and dropped to loosen hard materials. The nozzles must be well protected against contact with hard dirt if this method is used.

(To be continued next month)

"Right on the job"



RIGHT For High Strength Bolting — High strength steel bolts afford greater clamping force and stronger joints than ever before possible. And you can make permanent bolted connections or pre-bolt faster, quieter and safer with a CP Air Impact Wrench! Available with side, pistel grip or straight handles and angle head models for hard-to-reach spots.



RIGHT For Your Tamping Needs — One man using this Super Triplex Backfill Tamper can do the work of five men using single tampers. It has wheelbarrow handles that make it easy to guide over the work — gets more uniform compaction. The Triplex affords more efficient distribution of manpower...saves on air hose and air consumption.

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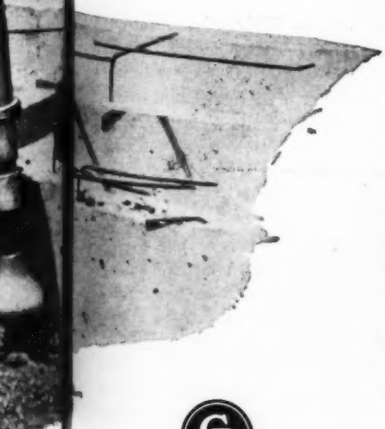

RIGHT For Dependable Air Supply — CP "Power Vane" Rotary Compressors afford thousands of hours of trouble-free service with minimum attention. CP Rotaries are available in capacities of 125, 210, 365, 600 and 900 cfm.

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Waterproofing masonry

■ A new booklet on masonry preservation released by the Tremco Mfg. Co., 8701 Kinsman Road, Cleveland 4, Ohio, includes a discussion of waterproofing problems and their solutions.

It reviews such problems in terms of the various kinds of masonry in which they occur, and the effects of water absorption from without and vapor migration from within. It also illustrates methods of caulking and pointing joints prior to the application of masonry preservatives.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 618.

Line of highway signs

■ Literature available from the Standard Sign & Signal Co., Inc., 470 Main St., Clinton, Mass., pictures and describes the company's line of highway signs, including contractors' work signs.

Motorist warning and direction signs, of aluminum alloy surfaced with Scotchlite reflective sheeting, are illustrated and their prices given. Warning signs for use on road-construction jobs also are described and their prices listed. Information about made-to-order signs also is included.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 675.

Syntron personnel

Customer relations, preliminary quotations, and other general engineering problems are being handled for Syntron New York Sales Co., New York, N. Y., by Preston Williams. The firm handles the sales of Syntron vibratory equipment, power tools, conveyors, rectifiers, and allied equipment.

Bradford H. Voltz has been made power tool and paper jogger salesman for Syntron Co., Homer City, Pa., the home plant and office of the company. He will cover Syntron Irvin Sales territory, which includes Pittsburgh and western Pennsylvania.

Work on a 30-foot-high and 28-foot-wide bench, to be used by loading and hauling rigs, begins as two Ingersoll-Rand Quarrymasters drill two rows of 6¾-inch holes to an average depth of 16 feet for blasting.

Equipment moves rock fast on tough turnpike stretch

Powerful rigs and effective drilling and blasting methods move 550,000 cubic yards of material in six months' time

Working in cuts up to 125 feet high, the rock subcontractor on a 12.3-mile stretch of the new Kentucky Turnpike removed 550,000 cubic yards of material in six months—thanks to some heavy-duty drilling rigs, modern blasting methods, and a large spread of loading and hauling equipment. This fast rock work on the toughest section may permit the turnpike—which runs from Elizabethtown to Louisville—to be completed by the end of this year.

Traylor Bros., Inc., Evansville, Ind., general contractor for preparation of the subgrade on this southern stretch of the new road, subcontracted rock work to Codell Construction Co., Inc., Winchester, Ky. Codell moved in in January, but before drilling could begin, service roads had to be built through adjacent farm-land and access roads had to be constructed to the large cuts.

Codell's drilling equipment included two Ingersoll-Rand Quarrymasters—one a rotary-type rig with a Hughes bit and the other a percussion-type drill with a carbide insert. Mounting each of the Ingersoll-Rand Quarrymasters are two 420-cfm air compressors, which are "built in" as part of the machine. Working 14 feet apart in large cuts averaging 100 feet high, the two rigs drilled two rows of 6¾-inch holes on 12-foot centers. The average depth of the holes was 16 feet. The drilling pattern was designed to produce benches 30 feet high and 28 feet wide to accommodate loading and hauling equipment. Secondary drilling was done by four Ingersoll-Rand wagon drills using Timken bits and supplied with air by three Ingersoll-Rand 315-cfm and one I-R 105-cfm compressors.

Blasting

Holes were loaded with Du Pont 40 per cent special gel in quantities of 4 pounds per foot of hole. Millisecond delay electric blasting caps set off the charges, with long-delay caps along the back row of holes and short-delay caps along the working edge of the bench. Detonation of the short-delay caps first removed rock from the path of material farther back, which was blasted through the use of the long-delay caps. This method of blasting produced approxi-

The Eimco Tractor loading hard abrasive rock and dirt. It used to take a two yard shovel to do this job but the 105 does it faster, cheaper and with greatly reduced cost.

The illustrations on this page are all from a river confining levee job in the French Cameroons. Eimcos are selected by contractors all over the world because of their rugged construction and extreme maneuverability.

First Crawler Tractor with Power-Shift Transmission

Eimco Tractors are the first crawler tractors with power-shift transmissions. Now it is as easy to operate a crawler tractor as driving the latest model automobile. All the work of operating is tremendously simplified — smooth power-controls shift gears and reverse without any operator effort.

Combined with the torque converter fluid drive, the revolutionary Eimco transmission allows smooth starts with only a touch of the foot throttle, or instant reversals wih a flip of the wrist.

The Eimco crawler tractor is the first without a master clutch; one hand operation maneuvers and reverses and spin turns or shifts gears in motion, without dropping the load or stopping.

The simplicity of operation permitted by the Eimco power-shift transmission makes it possible for the inexperienced operator to do a creditable job after only a short instruction period.

Eimco Tractors are also available with cable or hydraulically operated bulldozers. Operate the Eimco Tractor yourself — you'll never want to go back to wrestling with a conventional tractor.

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EIMCO

B-127

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A war-surplus Studebaker truck carries a Hobart 300-amp welder and a 10-ton winch to the work site for on-the-job repairs to one of the shovels.

A Bucyrus-Erie 71-B shovel uses an Esco 3-yard bucket to chew into rock blasted along this 12-mile section of the Kentucky Turnpike. *C&E Staff Photos*

mately six cubic yards of broken rock per foot of bore hole.

Three shovels loaded the blasted rock into hauling units. The rigs included a Lorain 82 with Amsco 2-yard bucket, a Lima 1201 with a 3½-yard bucket, and a Bucyrus-Erie 71-B with Esco 3-yard bucket. Almost all of the shot rock was loaded directly into Euclids. Koehring Dumptors were used for some minor clearing work on the benches. The hauling equipment—15 Euclid 16-yard end-dumps—made average hauls of 2,500 feet. Six Caterpillar D8 tractors were used at the cut, in the fill areas, and in maintenance work on the haul roads. On an average 10-hour work day from January through July, the loading and hauling spread moved between 7,000 and 8,000 cubic yards of rock.

Roadway construction

Where the turnpike roadway is completely in a cut, a 100-foot-wide section was provided to allow for the median, shoulders, and slopes. Only 88 feet was required where the roadway is in a fill section. Where the area entailed both cut and fill, a 94-foot section was provided.

In places where cuts and fills are less than 10 feet, the side slopes of the roadway are 2 to 1; if cuts and fills exceed 10 feet, slopes are 4 to 1. The largest fill in the entire stretch was 75 feet. Throughout the project, cuts and fills generally balanced out.

In building the final subgrade, Traylor Bros. will place about 2,500,000 cubic yards of borrow. The top 12 inches of the subgrade requires extra compaction. Approximately 375,000 square yards of dense graded stone will be laid and compacted in one 6-inch lift to provide a suitable base for the 9-inch-thick reinforced-concrete pavement. This selected material extends one foot outside the pavement, forming a portion of the base for the roadway shoulders.

Outside shoulders, being 10 feet wide, will have a porous crushed-rock base for the remaining 9 feet. This rock base will be primed with 0.25 gallon per square yard of RT-2 and covered with a 1-inch bituminous-concrete surface.

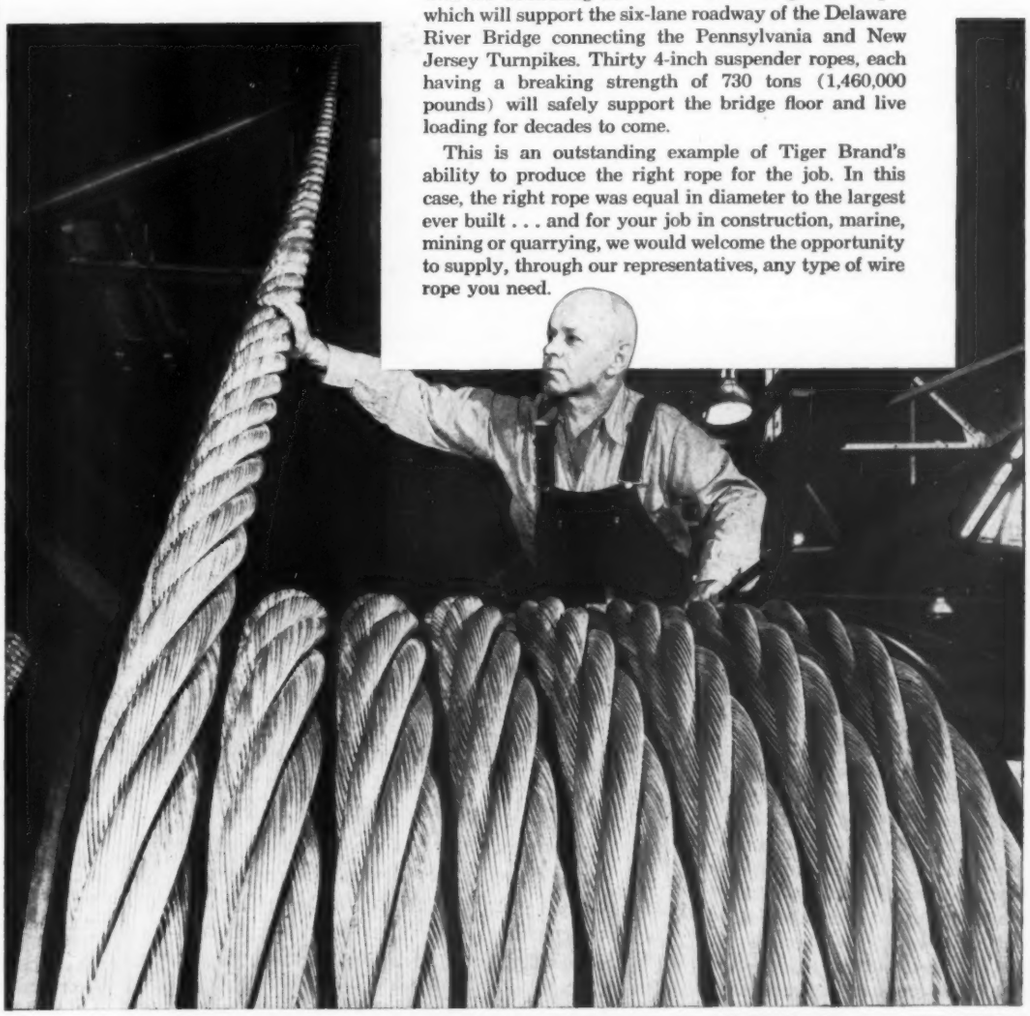
The roadway lanes will be separated

(*Concluded on next page*)

GIANT SUSPENDERS
In The Making
for the Pennsylvania-New Jersey Turnpike Bridge

You are witnessing the "birth" of the huge steel ropes which will support the six-lane roadway of the Delaware River Bridge connecting the Pennsylvania and New Jersey Turnpikes. Thirty 4-inch suspender ropes, each having a breaking strength of 730 tons (1,460,000 pounds) will safely support the bridge floor and live loading for decades to come.

This is an outstanding example of Tiger Brand's ability to produce the right rope for the job. In this case, the right rope was equal in diameter to the largest ever built . . . and for your job in construction, marine, mining or quarrying, we would welcome the opportunity to supply, through our representatives, any type of wire rope you need.



AMERICAN STEEL & WIRE DIVISION, UNITED STATES STEEL, GENERAL OFFICES: CLEVELAND, OHIO
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO • TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS AMERICAN TIGER BRAND WIRE ROPE

Excellay Preformed

UNITED STATES STEEL

For more facts, use Reader-Reply Card opposite page 18 and circle No. 525

as much as 500 feet in areas where service facilities and rest stations will be located. All these facilities will be located between the two roadways, so that motorists traveling either side of the road will be able to use the facilities.

Along a typical section where no service facilities are located, a 20-foot median separates the roadways. The 4-foot-wide inside shoulders and a 12-foot-wide raised grass strip make up the median. Runoff thus will occur at the outside edges of the roadway.

The $3 million subgrade contract includes, besides the rock quantity, 540 acres of clearing and grubbing, 1,732,000 cubic yards of unclassified excavation, 6,500 cubic yards of concrete for small structures, and right-of-way fencing.

Under a separate $1,227,034 contract, Ruby Construction Co., Inc., Madisonville, Ky., will construct 13 bridges along the 12.3-mile stretch of turnpike. A $2,989,038 contract for concrete paving on the section was awarded to J. B. Michael & Co., Inc., Memphis, Tenn.

Personnel

Ford Dyer is the project manager for Traylor Bros., Inc., on the job. For Codell, John B. Callaway is superintendent; Gordon "Casey" Jones, drill and pattern foreman; and Tom Pitts and Clyde Lewis, shovel foremen. C. W. Lovell is project engineer for J. Stephens-Watkins, Lexington, Ky., consulting engineering firm on this 12.3-mile stretch, and E. D. Baker, Jr., is resident engineer.

THE END

Series on rock salt as soil stabilizer

■ A series of five folders devoted to the general subject, Better Highways Through Salt-Soil Stabilization, and the application of rock salt in modern road building has been published by The International Salt Co., Inc.

Issue No. 1 discusses general principles of soil stabilization and explains the use of rock salt in this process. Plant-mix and road-mix procedures are treated in Issue No. 2, which describes the application of salt in these methods.

Crushed-rock roads are discussed in Issue No. 3, which contains case histories on two experimental projects in which salt was used as a stabilizing agent. Issue No. 4 describes in eight steps the salt-stabilizing of gravel roads. Issue No. 5 illustrates and describes step-by-step the stabilization of shoulders with rock salt.

According to this literature, International's Sterling rock salt is easy to handle as a stabilizing agent and is particularly effective because it does not dissolve completely during construction—thus leaving a reserve to create brine from later moisture. Elasticity to withstand excesses of rain, dryness, and temperature also is claimed as a feature.

To obtain this series write to the Industrial Division, International Salt Co., Inc., Scranton 2, Pa., or use the Request Card at page 18. Circle No. 729.

Line of cement-batching and storing equipment

■ A folder illustrating the Tampo Standard line of bulk-cement batching and storing equipment is available from Tampo Mfg. Co., P. O. Box 2340, San Antonio, Texas.

Full details are included on Tampo Standard weatherproof cement-batching plants, available in 150 to 250-barrel and 300 to 500-barrel capacities. Overhead and ground storage bins with capacities to 400 and 655 barrels also are described.

Accessory equipment listed includes bucket elevators, screw conveyors, and several optional features.

To obtain Bulletin No. BC-1 write to the company, or use the Request Card at page 18. Circle No. 699.

Mortar board and stand

■ An all-steel one-piece combination mortar board and stand has been announced by the Waco Equipment Division, Crenshaw Supply Co., 724 Boulevard, Atlanta, Ga. The 28×30-inch top of the Porta Board stands 17 inches off the ground.

The combination stand and board, which can be converted from folded to unfolded position or back in a matter of seconds, folds to a 4×28×30-inch size. In the folded position, the legs are locked and the unit can be carried by a handle.

For further information write to the company, or use the Request Card at page 18. Circle No. 673.

Heavy-duty backhoe as tractor attachment

■ Specifications, action photographs, and a complete description of the Ottawa heavy-duty backhoe are contained in a folder offered by Ottawa Steel Products, Inc., Div. L. A. Young Spring & Wire Corp., Ottawa, Kans. The backhoe may be used as an attachment on I-H tractors ranging

A Show you'll never forget!

GENERAL MOTORS POWERAMA

Gala Celebration of the 100 Millionth GM Diesel

LAKE SHORE SOUTH, CHICAGO—AUG. 31ST THROUGH SEPT. 25TH

GM Powerama presents—"roads a-building" exhibit of GM Diesel-powered equipment for both concrete and asphalt highway construction—dump trucks, concrete paver, rock crusher, graders, rollers and scrapers.

MAKE your plans now! The General Motors Powerama will be a national event too important, too spectacular to miss.

On 20 acres of grounds, a World's Fair of Power will unfold wonders galore. Fascinating exhibits—thrilling demonstrations—a colorful stage show—everything to make your visit interesting, educational and well worth the trip.

Come and bring the family. *Admission free!*

Plus many other interesting exhibits you won't want to miss—

ALLISON TURBO-JET and TURBO-PROP engines that power America's finest, fastest fighters and transports.

CLEVELAND DIESEL engines powering a submarine you can go aboard and inspect.

ELECTRO-MOTIVE's advanced lightweight 100-mile-an-hour train with its amazing new air-suspension springing.

EUCLID's full line of 10- to 50-ton Diesel trucks and 7-to 18-yd. scrapers.

FABRICAST's exhibit of modern casting methods.

GMC Diesel trucks and coaches, SceniCruiser and spectacular new "L'Universelle."

And a Complete Exhibition of GM's 7 Dazzling Dream Cars:

CHEVROLET BISCAYNE • PONTIAC STRATO STAR • OLDSMOBILE "88" DELTA • BUICK WILDCAT III • CADILLAC ELDORADO BROUGHAM LA SALLE II SEDAN • LA SALLE II SPORTS CAR

GM GENERAL MOTORS DIESEL POWER

DETROIT DIESEL ENGINE DIVISION

GENERAL MOTORS • DETROIT 28, MICHIGAN

In Canada: General Motors Diesel, Ltd., London, Ontario

from the I-4 to the TD-9; the J. I. Case SI, DI, LAI, 420, 520; Minneapolis-Moline RTI, and UTIL; Harris; Allis-Chalmers HD5; Caterpillar D-4 and D6; and the Michigan 75A tractor-shovel.

According to the manufacturer, the Ottawa backhoe will dig a trench faster, backfill with a blade attachment, and lay lightweight pipe. Advantages listed include operation convenience (only two levers are used to control four operations), good operator visibility, and automatic dirt ejection which eliminates jerking or shaking of the bucket.

Specifications include maximum height, 15 feet 10 inches; dumping clearance, 9 feet 1 inch; maximum digging reach, 18 feet 8 inches; maximum depth of dig, 11 feet; maximum width of dig, 36 inches; arc of swing, 130 degrees; weight, 3,450 pounds.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 707.

Contractors' transit

■ A contractors' and home builders' transit, reported to be accurate and simple to use is illustrated in a folder from Mikron Instruments, Inc., 1966 E. Walnut Street, Pasadena 8, Calif.

The Mikron Model 5 transit has an optical system accurate enough to read ¼ inch in 1,000 feet, and features a 20-power internal-focusing erect-image telescope.

Recommended uses include surveying property lines, making vertical wall and property grade measurements, running roads and highways, checking water boundaries, etc.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 644.

Dominion Bridge opens new plant in Toronto area

A new plant, equipped for heavier plate and tank work as well as work on all kinds of welded structures has been added to the facilities of Dominion Bridge Co., Ltd., Lachine, Que., Canada. Located in the Toronto area and known as Dominion Bridge Co. Mount Dennis plant, it supplements the Toronto fabricating plant which is equipped primarily for structural steel and light plate fabrication.

Details on truck mixers

■ The construction, operation, and maintenance of Worthington Hi-Up truck mixers is pictorially presented in a booklet available from the Concrete Machinery Division, Worthington Corp., Plainfield, N. J.

Fourteen pages of pictures and explanatory test detail such features claimed for Hi-Up truck mixers as fast charging, thorough mixing, and rapid complete discharge of all slumps of concrete; easy accessibility to engine parts for servicing; handy grouping of controls for the operator's convenience; and simple adjustment of the distributing chute. Details of the oil-immersed transmission, which reportedly saves wear on the drum transmissions caused by the sudden starts, stops, and reversals involved in mixing concrete, also are given.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 712.

Steel roof decking

■ Steel roof decking is illustrated in a folder from Airtherm Mfg. Co., 700 S. Spring Ave., St. Louis 10, Mo. The Airtherm decking makes a durable steel roof, and has also been used effectively for wall partitions and as a subbase for concrete or aggregate flooring.

Deck sheets are available in 30-inch widths having 5 ribs spaced on 6-inch centers. The 1⅝-inch-deep ribs have a bearing web of ⅝ inch, whereas the top opening is only ¾ inch wide. Positive longitudinal lock joints as well as full embossing at the end laps make the deck self-aligning.

The literature includes text and illustrations on construction features, installation and erection methods, accessories, and other technical data and specifications.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 647.

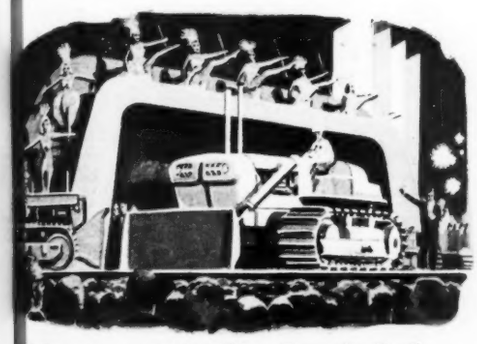
Compactor features segmented-wheel design

■ A bulletin describing the K-45 Kompactor, a segmented-wheel compactor, has been released by Buffalo-Springfield Roller Co., Springfield, Ohio. Operating on the "interrupted pressure" principle, the self-propelled K-45 exerts all of its compaction effort in a downward direction.

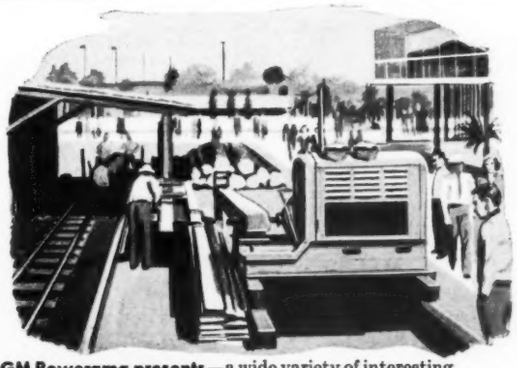
Each of the K-45's four roller wheels is faced with staggered rows of heavy steel pads that form the compacting surfaces. These pads enter loose materials with a minimum of displacement either forward or to the side, and then leave without disturbing the compacted areas. This principle prevents loose materials from flowing ahead of the wheels.

Complete information on engine, transmission, compaction wheels, dimensions, weight, and compression are included in the literature.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 631.

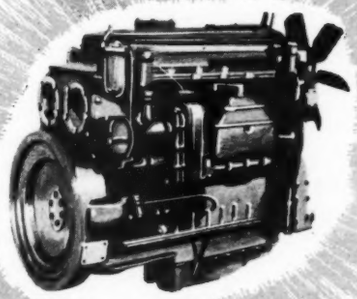


GM Powerama presents—"More Power To You"—a mammoth variety show in which Diesel-powered vehicles perform fantastic maneuvers—with Big Top circus acts and a huge cast of dazzling dancing starlets.

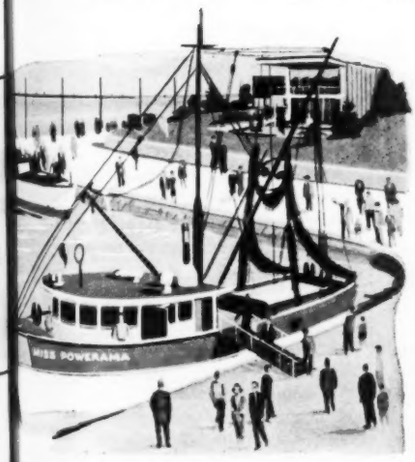


GM Powerama presents—a wide variety of interesting, *operating* exhibits showing the use of Diesel power in many fields including a sawmill, a cotton gin, an irrigation system, a farm tractor and a feed mill.

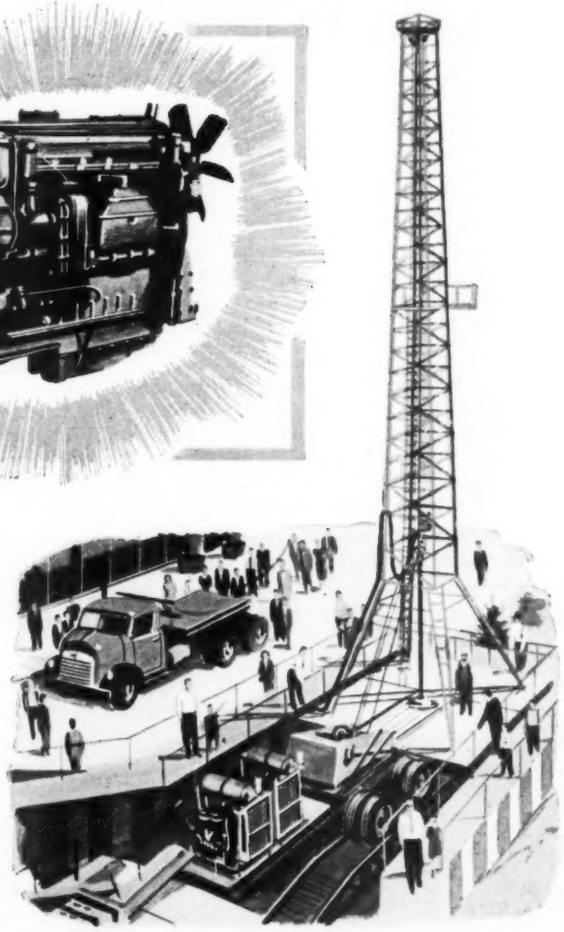
Diesel Horsepower



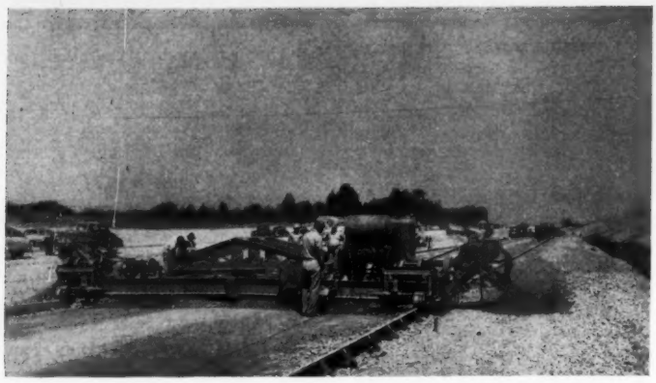
GM Powerama presents—at the head of the parade—Detroit Diesel's golden "6-71" Diesel engine (representing 100 Millionth General Motors Diesel H.P.). Also, Dr. Diesel's first engine and exhibits ranging from the 1933 World's Far Diesel engine to the compact new "51" engine that opens new fields for Diesel usefulness.



Powerama presents—a marine display including Diesel-powered shrimp boat and 36-foot and foot pleasure craft for the interest of those who t Diesel safety, speed and economy in their boats.



GM Powerama presents—a modern, portable oil-well drilling rig in action, powered by General Motors 2-cycle Diesel engines which have won a reputation for "more power in less space with less weight."



A Buckeye Finegrader equipped with the new Grade-A-Curve feature.

Feature permits accurate fine-grading of curves

■ A new feature which is said to make the fine-grading of highway curve transitions an easy continuous operation, with grade to exact specifications, has been announced for its Buckeye Power Finegraders by Gar Wood Industries, Inc., 36253 Michigan Ave., Wayne, Mich.

According to the company, the Grade-A-Curve feature enables the finegrader to cut grade so accurately that concrete savings on the transitions of only one curve have amounted to $1,500 for a 24-foot wide pavement.

Finegraders with the new Grade-A-Curve feature have an I-beam structural frame which is hinged at the center of the machine, so that an accurate ratchet-type control adjustment with graduated steps raises the frame and cutting blades at the center for cutting a crown, and lowers them to cut on the level, without stopping the machine for adjustments.

Whereas curve transition sections formerly were fine-graded by hand and with motor graders, the new feature permits the Buckeye Finegrader to hold the grade to within 1/10 of 1 per cent on all sections. On a typical job, a Buckeye Finegrader equipped with the Grade-A-Curve feature averaged 2,000 feet of 24-foot grade daily. Savings on concrete are said to be considerable with the new feature.

For further information write to the company, or use the Request Card at page 18. Circle No. 725.

Specifications and use of high-tensile bolts

■ Literature on the use and advantages of high-tensile bolts for structural steel assembly, and on new specifications for these bolts, is available from the Lamson & Sessions Co., 1971 W. 85th St., Cleveland 2, Ohio.

An illustrated bulletin describes the use of high-strength bolts and lists advantages claimed over other fastening methods. According to the literature, high-tensile bolting provides a stronger connection, is faster and therefore represents a saving in cost, requires less labor and equipment, eliminates noise, is safer, and requires a lower percentage of inspection.

Dimensions, mechanical requirements, bolt tension and torque values are given in tables. Stock sizes of Lamson high-strength bolts, ranging from ⅝ to 1 inch in diameter, also are listed.

An accompanying folder contains complete specifications for high-tensile bolts as recommended by the Research Council on Riveted and Bolted Structural Joints.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 710.

Concrete densifier

■ Literature on its concrete densifier, Plastiment, is available from Sika Chemical Corp., 35 Gregory Ave., Passaic, N. J. The booklet describes how Plastiment controls set and reduce the water content of concrete without increasing the air content.

By retarding and reducing gel formation, the additive increases concrete uniformity, decreases segregation, and offsets detrimental temperature effects. It also results in less cracking in the concrete by reducing volume changes and by increasing uniformity, bond, and strength.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 626.

PETER KIEWIT SONS CO. uses a 22½-ton Lorain Moto-Crane, model MC-424, with 50-ft. boom, handling concrete bucket on railroad overpass construction on $5-million contract C-6 east of Gary. This Omaha, Nebraska, contractor has purchased 44 Lorains.

TAYLOR WHELESS & CO. of Jackson, Mississippi (joint contractors with Winston Bros.) use a 20-ton Lorain Moto-Crane as a dragline to excavate footings for an overpass on contracts C-17, 18, 19 ($7,500,000) near La Porte, Indiana. Also used to handle concrete, forms, steel and clamshell excavation.

ANOTHER TURNPIKE
MORE LORAINS... MORE PROOF!

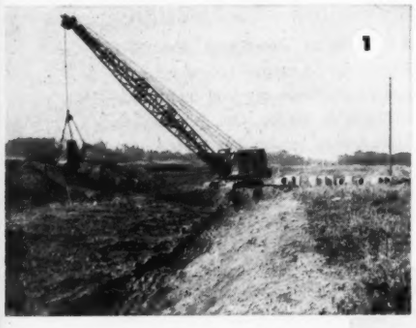
Ever since the first yard of earth was moved on America's first super-highways, Lorains have been a familiar sight . . . from the Pennsylvania Turnpike to the current Indiana Turnpike. Hundreds of Lorains have seen duty on these closely bid, tightly scheduled contracts. Contractors' names through these years on these jobs are the "Who's Who in American Construction."

Now, the 156-mile, $280-million Indiana Turnpike is the latest of these "proving grounds" for Lorains as they help dig the 50,200,000 yds. of material, help pour the 300,000 yds. of concrete on the 260 structures, help place the 86,000 tons of steel.

Shovel-crane equipment, particularly on vast projects like this, must fit many kinds of work — digging, casting, erection, material handling, to mention a few. Lorains do that best of all because of the tremendous selection of shovel-crane sizes through 2½-yard shovels and up to 61-ton crane capacities . . . plus the convertibility to all front ends . . . plus many types and sizes of rubber-tire and crawler mountings available for any terrain or travel conditions.

Many years and many turnpikes are your proof that Lorains will lick rough, tough, fast-scheduled jobs . . . and prove they'll *move more material, faster, cheaper, on your job, too!*

THE THEW SHOVEL CO., LORAIN, OHIO



1) This 1½-yd. Lorain dragline uses a 60-ft. boom to dig drainage ditches 6 feet deep, 28 feet wide, at the rate of 250-ft. per day on the Carlson-Fleming subcontract near Rolling Prairie, Indiana.

2) Winston Bros. of Minneapolis (joint contractors with Taylor Wheless & Co.), an 8-time Lorain owner, use a 25-ton Lorain Moto-Crane to handle 1¼-yd. concrete buckets to pour box culverts, handling about 30 loads per hour. This Moto-Crane is assigned to many other varied duties all over the job.

3) This Lorain 30-ton Moto-Crane, model MC-524, with an 80-ft. boom pours concrete for an overpass on the S. J. Groves & Sons Co. contract near La Grange, covering 12 miles and totalling $6,740,000.

THEW LORAIN®

← For more facts, circle No. 528

The Sonopipe sleeve.

New fiber pipe sleeve for coring floor slabs

■ A fiber tube for use as a pipe sleeve in coring concrete floor slabs has been announced by Sonoco Products Co., Hartsville, S. C. The Sonopipe sleeve is made of lightweight material, but is said to be sufficiently strong to withstand the pressure of poured concrete in the construction of floors, roof decks, walls, and other concrete members.

The Sonopipe sleeve is recommended for use where cores are required for plumbing, heating, and conduit lines, or for creating drains in bridge decks and weep holes in concrete walls. Thoroughly wax impregnated, it requires no greasing or sand filling.

Two metal ends with built-in anchors are used with the fiber tube. One metal end closure is nailed to the form, the Sonopipe sleeve (cut to required length with a hand or electric saw) is slipped over the nailed-in-place closure, and the other end closure is inserted in the top of the sleeve. The anchors in the metal end nailed to the form hold the sleeve straight so that the resulting core in the concrete is true. After the concrete has set, the metal end closures are knocked out, leaving holes for the pipes or conduit. The fiber sleeve is left in because of its sound insulating values, although it can be removed.

Sonopipe sleeves are available with inside diameters ranging from 2 to 8½ inches, and are shipped in 36-inch lengths, together with the required number of metal end closures. Because of the low cost of the unit and the time saved in installation, these sleeves are said to be much more economical than conventional ones presently being used.

For further information write to the company, or use the Request Card at page 18. Circle No. 716.

Structural-steel joists for small buildings

■ A strong but lightweight structural-steel member for supporting floors and roofs is now being produced on an assembly-line basis at the Ambridge, Pa., plant of United States Steel's American Bridge Division. The joists will be used in the construction of schools, super markets, garages, small industrial units, and other light-occupancy buildings.

While joists now generally in use must be hand welded by the fabricator, the AmBridge joist is resistance-welded on the assembly line, eliminating delays for the contractor.

The joist is made 3 to 40 feet in length and in various widths and weights to suit the customer. It is easily erected because of its lightness and simple end connection.

For further information write to the company, or use the Request Card that is bound in at page 18. Circle No. 649.

Fuel tank for tractors

■ Semi-oval in shape, a new tractor fuel tank is designed for greater safety, according to Master Tank & Welding Co., Dallas, Texas. The tank is constructed with an overlapping head, which places the welds a full inch from the point where the head of the tank starts to curve.

According to the manufacturer, this makes it impossible for a forceful blow to strike directly in line with the weld. It also means that under sudden pressure, the metal of the tank will fold instead of shear.

The semi-oval Master fuel tank for tractors.

The Master tank is manufactured in 40, 45, 55, and 60-gallon capacities.

For further information write to the company, or use the Request Card that is bound in at page 18. Circle No. 650.

Slope Meters Mean *Efficiency Plus* on Your Tractors, Dozers & Graders

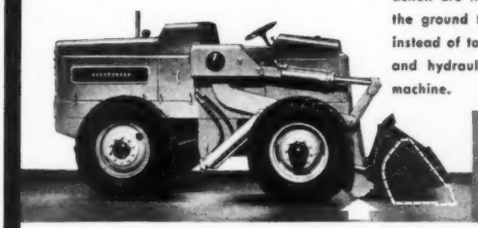
Slope Meter installed on your earthmoving equipment increases working efficiency by telling the operator, automatically, the exact crown or slope on which he is working. Slope Meters cut construction costs on highways, airports, dams, and building sites.

Order from your Equipment Distributor today or from
THE SLOPE METER CO. EXCELSIOR, MINN.
For more facts, circle No. 529

Three completely New
PAYLOADER® tractor-shovels
with new "more-yardage" features

POWERFUL PRY-OUT ACTION

Tremendous pry-out force is obtained by using the breakout pads on the ground as a fulcrum for leverage. The load forces opposing the pry-out action are thus transferred to the ground through the pads instead of to the axle, wheels and hydraulic system of the machine.



model HU 1 cu. yd.

40° BREAK-OUT at ground level

You can get HEAPED BUCKET LOADS and you get them FASTER and EASIER WITH THIS NEW BUCKET ACTION. Most important of all — you KEEP BIGGER PAYLOADS—because the bucket can be tipped back a full 40 degrees at ground level before it is raised, eliminating spillage.

model HH 1½ cu. yd.

SAFETY and STABILITY

Special boom-arm shape and positioning keeps moving members out of operator's reach at all positions. Close, low, load-carry position and longer wheelbase provide stability and balance for fast maneuvering — with safety.

model HO 2 cu. yd.

These three all-wheel-drive "PAYLOADER" units are outstanding examples of Hough's continuing pioneering and leadership in tractor-shovel design. They have more digging power, get big bucket loads easier, can carry them faster and safer.

They are full of other features and improvements that boost output, operator comfort and safety and that lower the cost of digging, scooping-up, loading, moving and piling earth and bulk-materials.

Your "PAYLOADER" Distributor is ready to demonstrate these new units and what they can do — for you.

HOUGH-DESIGN
HOUGH-QUALITY

More Horsepower per bucket capacity than any other standard models. Either diesel or gasoline engines available.

Easy to Operate Fullest operator visibility for safe, fast maneuvering; power steering; powerful hydraulic brakes; adjustable seat with molded foam-rubber cushions.

Powerful Transmissions Powershift transmission is standard equipment on the big model HO; four-speed full-reversing types on model HH and HU. Torque converter drives are standard equipment on all models — multiply engine torque up to 350% — act as shock absorbers for the entire power train.

THE FRANK G. HOUGH CO.
762 Sunnyside Ave. Libertyville, Illinois

Send full information on new "PAYLOADER" Tractor-Shovels
☐ Model HU 1 cu. yd.
☐ Model HH 1½ cu. yd.
☐ Model HO 2 cu. yd.

Name .....
Title .....
Company .....
Street .....
City .....
State .....

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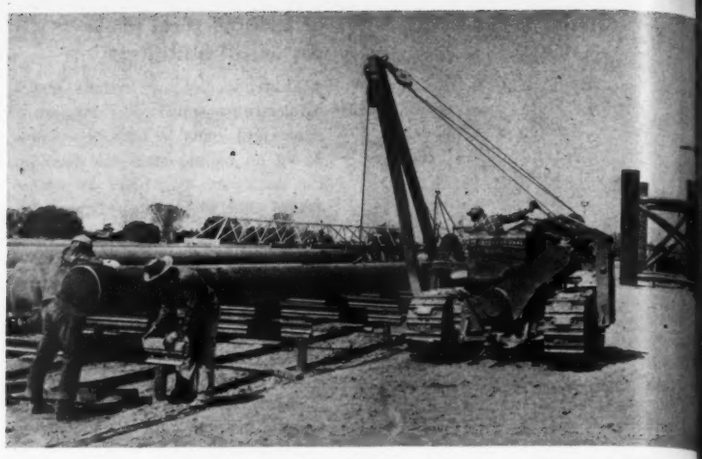
MANUFACTURED BY
THE FRANK G. HOUGH CO. LIBERTYVILLE, ILL.
SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY

For more facts, use Reader-Reply Card opposite page 18 and circle No. 530

Huge derrick barge sets off-shore drilling tower

by RALPH MONSON, field editor



An International TD-14A tractor uses a sideboom to place a long section of pipe on an assembly jib in the fabrication yard. In the background, right, is an assembled section of tower. *C&E Staff Photos*

Workmen use lines to guide the end of a 200-foot-long 18-inch pipe being set into a 20-inch jacket by the American R-40 crane. Though ocean swells caused the rig to pitch and set up a swaying motion in the 225-foot boom, the pipe was set quickly.

One of the 18-inch piles is driven home by the Vulcan OR hammer. Horizontal white marks on the pile at left are spaced 1 foot apart, and the length of the pile is indicated numerically at 5-foot intervals.

Crane with 225-foot boom drives 200-foot piles and places 150-ton prefabricated steel tower sections

Exploitation of underwater oil resources has opened a big new field of construction activity—the fabrication and erection of off-shore oil field facilities.

In the Gulf of Mexico off the coast of Louisiana and Texas, this field is growing by leaps and bounds as new equipment makes it feasible to go further and further out into the Gulf for oil. A key piece of equipment making off-shore drilling possible is the big derrick barge which handles the huge prefabricated sections of the drilling platform.

One of the newest of these big barges is the McDermott Derrick Barge No. 8 owned by J. Ray McDermott & Co., Inc., Harvey, La. This titan of the construction fleet mounts an American R-40 revolver which picks up a load of 150 tons at a distance of 80 feet from the center of rotation and swings it through the full 360-degree circle. Tied down, this crane picks up a load of 250 tons at the same radius. With the huge A-frame recently added, the barge picks up a load of 800 tons—that's 1,600,000 pounds, or the equivalent of about 530 Ford sedans.

These huge lifting capacities mean that larger structures, like the barge-tended drilling platform erected for Magnolia Oil Co., can be fabricated on shore, taken to sea on barges, and placed by the big cranes, and the difficult job of fabrication at sea can be avoided.

The drilling platform for Magnolia Oil Co., designed by the civil engineering department of Magnolia Petroleum Co., Morgan City, La., is located in the open Gulf, about 50 miles south of Houma, La. This structure—one of many types used for various purposes in the off-shore oil fields—serves as a platform for drilling in three oil wells. During operations, a drilling-equipment barge ties up to the main structure, and an auxiliary anchorage called a bumper dolphin. Since this barge carries much of the equipment needed for the work, the platform is smaller than some of the others in the Gulf.

Platform construction

The substructure of the platform consists of 36 steel pipe jackets, 20 inches inside diameter and 70 feet long. These jackets are arranged in four rows of nine each, with the inner rows set vertically and the outer rows battering out at the bottom. The jackets are tied together into a rigid structure by welded tubular braces and struts. Pipe piles 18 inches in diameter and 200 feet long are driven through the jackets to support the structure.

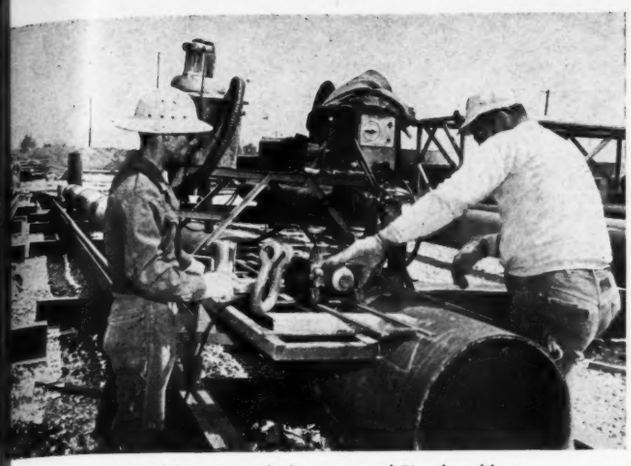
The platform itself consists of a series of 30-inch WF beams at 10-foot spacings, with 10-inch I-beam stringers between the beams. A timber floor, measuring $90 \times 51\frac{1}{2}$ feet is surrounded by a substantial steel pipe railing and chain link fence.

The bumper dolphin, also fabricated on shore, consists of jackets to receive 12 of the long piles. The jackets are arranged to form a triangular tower and are braced with welded tubular members to form a rigid structure.

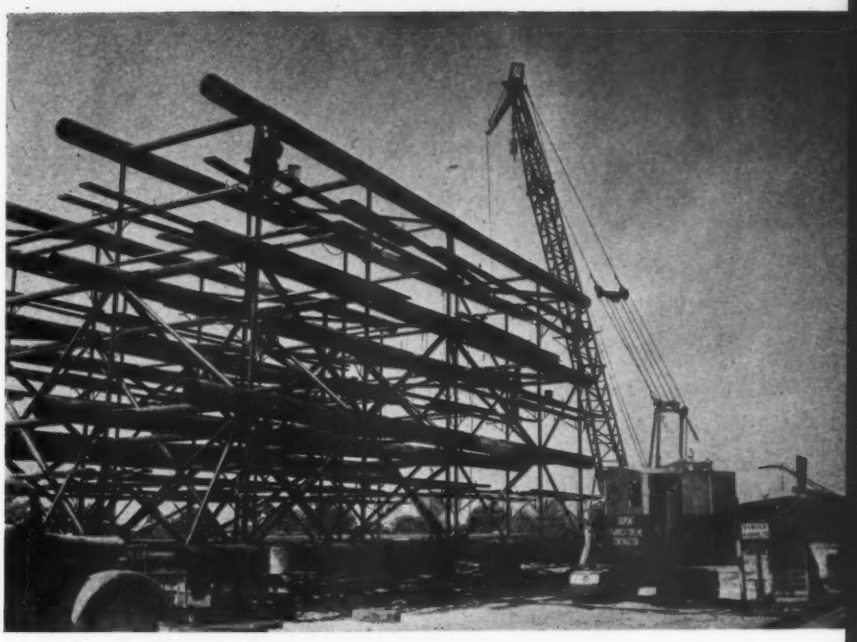
Structures fabricated on shore

On the bank of the Intra-Coastal Waterway Canal at Morgan City, La., where Magnolia Petroleum Co. has set up a yard for the fabrication of the structures, actual assembly of the parts is done under a contract by Dupont Fabricators, Inc., Morgan City, La.

Pipe is joined together and reinforcing sleeves for the braces are welded to the pipe sections by Oxweld and Lincolnweld machines. Sections of pipe are moved around the yard by an International TD-14A tractor with side boom. When they are ready for



A longitudinal joint is made by a manual Lincolnweld arc-welding machine on a section of pipe which will make up the substructure of the off-shore platform.



One of the 70-foot-long pipe members is held in position by a Lima Paymaster crane while tubular struts and bracing are welded.

assembly, a Lima Paymaster crane picks up the parts and holds them in place while the joining welds are made.

Power for the many welding arcs in the yard is supplied by General Motors diesel generator sets. Each of the units, including a GM diesel engine and a 60-kw generator, is mounted on a semi-portable steel platform which has a steel canopy. With each of the generators are four or more 250-amp Lincwelders which regulate the current to the individual welding arcs.

When the structure has been assembled in sections of convenient size to load on a barge, it is carefully cleaned, primed, and painted to protect it against salt water. Sections are either loaded on barges by a stiffleg derrick or are skidded from the assembly platform onto the barges. If equipment is not available to make big lifts, some of the heavier structures are fabricated on the barges.

Barges loaded with the sections of the structure and the long piles are towed through the Intra-Coastal Waterway to the Gulf of Mexico, and then out to sea and the big derrick barge at the erection site.

Derrick barge assembles structure

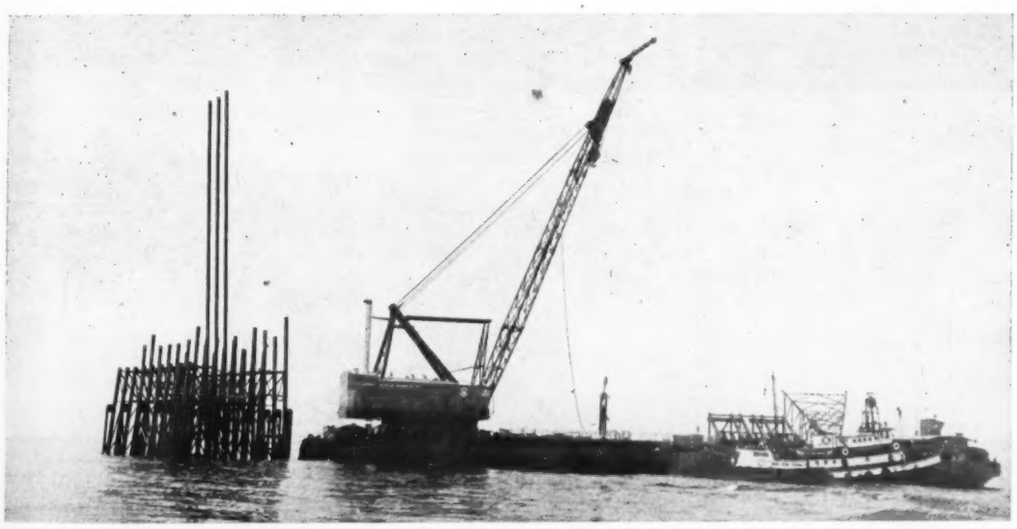
Jackets for the Barge-Tended Structure recently erected were assembled in the yard in three 60-ton sections, two of which were set up and joined on the barge before being placed on the ocean bottom. The McDermott Derrick Barge No. 8 had enough power to set the three sections at once, but since there was no room on the barge to assemble all three, the third section was set in and attached to the others in the water.

At this location, the water is about 27 feet deep. The jackets were jetted about 5 feet into the sand bottom, leaving 38 feet of the jackets above water. This jetting, as well as all necessary jetting of the piles was handled by a big Peerless jet pump driven by a GM twin 6-71 diesel engine.

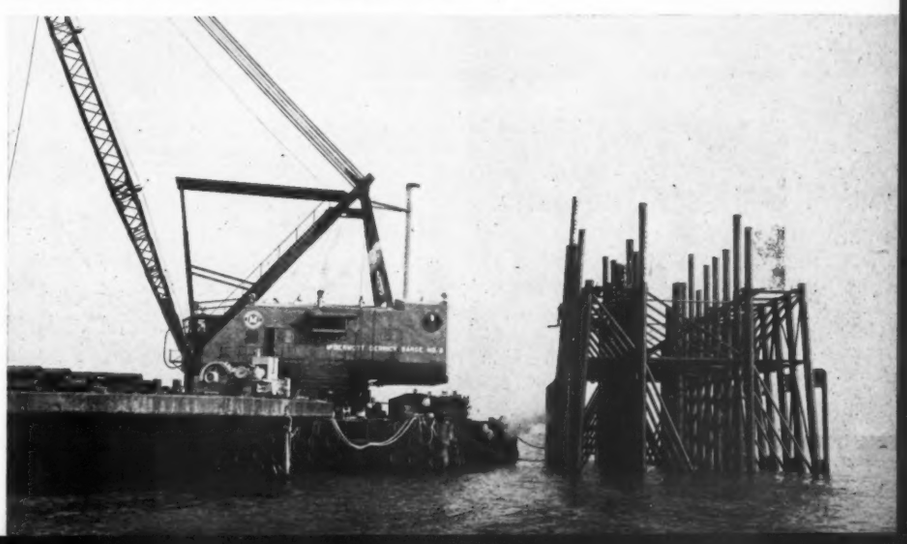
With the jackets set in place, the American R-40 revolver began setting the 200-foot pipe piles. A line from the tip sheave of the 225-foot boom was attached well to one end of the long pile, so that the pipe hung almost vertically. Then as several men with hand lines helped guide the lower end, the pile was "stabbed" into the jacket and lowered until it rested on bottom.

Getting these long 18-inch OD pipes into the 20-inch ID jackets would be a delicate operation, even

(Continued on next page)



Picking up a Vulcan OR steam hammer, the crane prepares to drive three piles 130 feet into the Gulf bottom. Derrick barge No. 8, 300 feet long, 90 feet wide, and 19 feet deep, is completely equipped with living quarters for 80 crewmen.



Though pile driving is incomplete, the shape of the platform substructure is beginning to take shape. The 200-foot piles driven through the 70-foot-long pipe will be grouted to the jackets.

Electric power for welding operations in the fabrication yard is generated by semiportable plants. This 60-kw GM diesel generator provides power for four 25-amp Lincolnwelders.

THE IMMENSITY of the Los Angeles County Sewer system project is accentuated by comparison of workmen with 144 inch diameter concrete pipe.

Vibration Important Feature in Production of 144 Inch Concrete Pipe

• **Los Angeles installation**—The expansion of facilities of the County Sanitation Districts of Los Angeles necessitated installation of 7800 feet of 12 foot diameter reinforced concrete pipe. The pipe is 12 feet in length with tongue and groove joints and with a shell thickness of 12 inches. The pipe sections weigh about 39 tons per length.

• **Manufactured at plant**—Reinforcing consisted of a double cage, one of which was elliptical in shape. Cages were manufactured at the plant site and the circumferential reinforcement welded to the longitudinal bars. The cages were dropped over the inner form and held in place by appropriate spars. The outer form was then placed, and the job was poured in the usual manner.

• **Tests made**—United Concrete Pipe Corporation used three Model PX Vibrators on steel forms specially constructed to eliminate leakage of grout or water. Tests made of concrete in these pipes show high strengths, as much as 7000 pounds per square inch not being uncommon.

• **An interesting manual**—on "How to Apply, Operate and Maintain EXTERNAL VIBRATORS in the MANUFACTURE of CONCRETE PIPE" can be obtained by writing Viber Company, Burbank, California.

• **For further information**—on Viber's complete line of internal and external vibrators, contact your authorized distributor, or Viber Company, Dept. 76, 726 South Flower Street, Burbank, California.

CONTROLLED HIGH SPEED external vibration with Viber Model PX vibrator produces smoother finished surface inside and out. High strengths obtained in this pipe would have been impossible without vibration.

VIBER

CONCRETE VIBRATORS SINCE 1931

For more facts, use Reader-Reply Card opposite page 18 and circle No. 531

(Continued from preceding page)

on land; at sea, the slight pitch and roll of the barge made the long boom move in an arc, keeping the pile constantly on the move. In spite of this, and the fact that the workmen trying to make the contact on the structure were in constant danger of being knocked into the water, the piles were set in place very rapidly.

When three piles had been inserted into the jackets and stood extending high into the air, the revolver picked up the Vulcan OR steam hammer and set it on one of the piles. No leads were used to drive the piles to a minimum of 30 tons bearing, which in most cases required penetrations of 110 to 120 feet through the sand and mud of the ocean bottom. Piling was cut off flush with the tops of the jackets, and the annular space between pile and jackets was grouted to provide bond.

The completely assembled 115-ton deck section was then set in place by the revolver and welded to the substructure, and a 140-foot drilling tower was mounted on the platform. Jackets for the bumper dolphin were set up in the same manner as those for the main structure, and the same type and size of piling was driven to support this structure.

For the crew of Derrick Barge No. 8, building this type of structure is usually an eight or nine-day job, if weather permits continuous round-the-clock operation. But at this particular location, weather caused several delays. Twice the sea got so rough that the superintendent ordered the anchor raised and the barge towed into the shelter of the nearest island some 12 miles inshore from the structure.

As soon as the weather started to break, No. 8 was on her way back to the job and by the time the sea had quieted enough to permit work to resume, the barge was back in place and ready to continue operations.

Derrick barge is well equipped

Approaching the derrick barge at work by water taxi, the most noticeable feature of the job is the big derrick. Its 225-foot boom sticking high into the air becomes visible first across the wide expanse of Gulf. Then as the small boat draws closer, the great black hull of the derrick barge and the big supply barge tied alongside take shape. But only from its deck is it possible to realize the size of the derrick barge.

The deck is 90 feet wide and 300 feet long, and the hull is 19 feet deep. Near one end, the American R-40 revolver is mounted on a base high enough so that the lowest part of the crane clears the deck by 10 feet as the machine rotates. A good idea of how big a crane the R-40 is and how high its boom reaches into the sky can be gained by standing under the machine. The operator up in the cab, though dwarfed by the huge crane, handles the monster with smoothness and precision, as if it were a delicate instrument.

The barge creates a new impression from the inside of the deckhouse at the opposite end. Half the deckhouse is given over to an operations office resembling the nerve center of a ship. The neat office is fitted with desks,

'round the clock!

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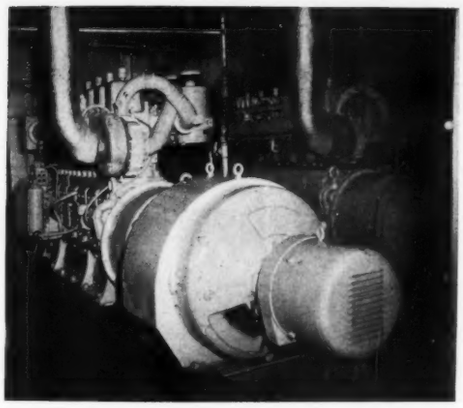

In the generator room of the derrick barge are two Electric Machinery generator sets, each rated at 250-kva.

chairs, drafting table, files, and the ship-to-shore radio which keeps the barge in constant contact with its base and other floating units.

In the other section of the deckhouse is the recreation room where the off-duty crewmen watch television, play ping-pong or cards, or read. A companionway leads from the deckhouse down to the next deck, which contains a gleaming modern galley and a dining room seating 40 men. Since it is cafeteria style, men help themselves to as much as they want and can still go back for seconds.

This deck also contains quarters for 72 men and staterooms for supervisory personnel and guests. Wash rooms and shower rooms are clean, attractive, and completely equipped.

A trip to the next deck below shows how all this is possible. Here is a Carrier ship-stores refrigerator for keeping the food supply, two Carrier 30-ton Weathermaker units which provide heated or cooled air to the living quarters. An auxiliary oil-fired American Standard boiler is ready to provide additional heat if necessary. For long stays at sea, a water making machine produces 1,000 gallons of potable water daily, while a Meco water distillation unit produces 400 gph for other uses. Deming sanitary and potable water pumps provide the water under pressure at fixtures throughout the barge. A septic tank collects waste water and a pump forces it overboard. Electric power is generated by a pair of Electric Machinery 250-kva generators driven by Waukesha diesel engines.

Other equipment on the deck of the barge includes a steam-powered American anchor windlass for handling the 1,000 feet of 2 1/16-inch anchor chain on the 10,000-pound main anchor. Four Danforth anchors are handled on 12,000 feet of 1¼-inch cable by American winches. When the big barge is being towed by a tug, its line is handled by an American electric towing winch powered by a Westinghouse motor.

The barge is big, the crane is big, and both, going far out into the Gulf of Mexico for extended periods of time have been well designed for the job of placing the big prefabricated oil field structures required in this off-shore oil-producing area.

Personnel

Superintendent of the crew on the derrick barge was Joel E. Potter. Shift foremen were Paul Hitt and Dick Hebert. Supervising the operation from the Harvey office of J. Ray McDermott Co., Inc., were Cecil Potter, O. H. Jones and L. E. Stewart. Chief engineer for Magnolia Petroleum Co., is Olin Crandall. District civil engineer in charge of this work was J. W. Terry. On the fabrication of the structure, Ed Fandgue was superintendent of the crew with E. W. and A. W. Dupont also providing active job supervision. THE END

Plastic screw anchors hold in concrete

■ Plastic concrete anchors that withstand up to 1,320 pounds of pull are described in a leaflet from Holub Industries, Inc. Sycamore, Ill. Easily inserted into pre-drilled holes the Hi anchors expand to grip the surrounding concrete tightly as screws or nails are driven into them.

Hi plastic screw anchors, made of Ethyl cellulose, are reported to be unaffected by moisture, corrosion, or extreme temperatures. They are said not to rot or deteriorate with age.

The screw anchors can be used in any material that can be drilled, including wood, plaster, brick, marble, and various types of wall boards. They are available in nine sizes for Nos. 5 to 20 wood screws and ¼ to ½-inch lag screws. Handy kits, marketed in a plastic case, include screw anchors in popular sizes, screws, and masonry drills.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 627.

Line of excavators and material-handling cranes

■ A new mailing piece shows Bay City shovels and cranes on a variety of operations. Bay City excavating and material-handling equipment is available in crawler, truck, or wagon mountings. Digging buckets range from ½ to 1½ yards in size, and cranes lift from eight to twenty-five tons.

Attachments illustrated include standard excavator buckets, drag buckets, clam buckets, concrete buckets, scrap grapples, orange-peel buckets, and a stone grab.

To obtain this literature write to Bay City Shovels, Inc., P. O. Box 151, Bay City, Mich., or use the Request Card at page 18. Circle No. 636.

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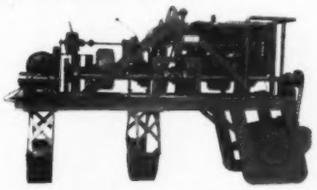
ROAD BORING MACHINE

for installing casing up to and including 42" in Diameter . . .



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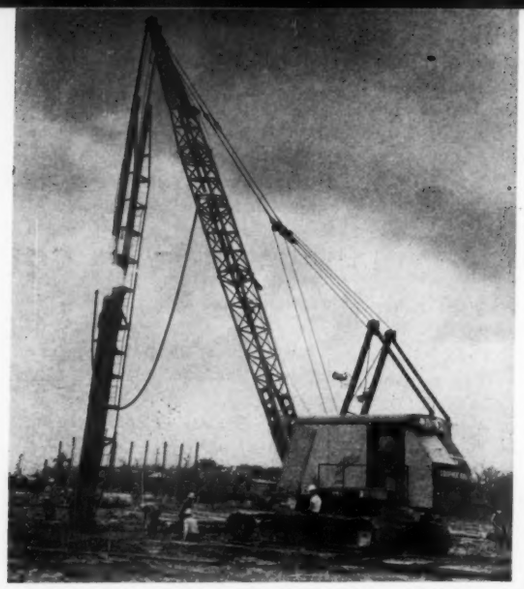

A Manitowoc 3500 crane with a Vulcan No. 1 hammer drives piling to support the concrete slab and casting-yard structures in the pile fabrication yard and storage area. All structures are supported on piling, since the ground was unstable. *C&E Staff Photos*

Contractors Turn Swamp Into Casting Yard For

Lake Pontchartrain 23-Mile Cau

On a 40-acre tract in what was last January a dense cypress swamp on the north shore of Lake Pontchartrain in Louisiana, nearly 5,000 prestressed concrete piles and more than 2,200 complete deck sections are being cast. These units will be used in the world's longest over-water vehicular bridge —a $30 million 23-mile causeway to be known as the Greater New Orleans Expressway and designed to span the lake from the north to the south shore.

In less than five months, Louisiana Bridge Co., a joint venture of Brown & Root, Houston, Texas, and T. L. James & Co., Inc., Ruston, La., has transformed the lakeside swamp at Mandeville into a modern plant for the manufacture and prestressing of bridge sections for the new span, which will connect Lewisburg in St. Tammany Parish on the north shore to Jefferson Parish just west of New Orleans on the south shore. At the latter point, causeway approaches will connect with Veterans Memorial Highway and the New Orleans Expressway system. The bridge, being constructed by the two parishes, is being financed by a bond issue which will be repaid from tolls.

Preliminary to bridge construction or the casting of sections, a 2,000-foot-long navigation channel measuring 150 feet wide and 12 feet deep had to be dredged from navigable water in the lake to the casting yard. Material dredged from the lake bottom was used to raise the swampy area to an elevation about six feet above water level. This provided something of a working platform for construction machinery, but since it did not provide adequate support for any required structures the contractor had to drive 7,000 timber piles 35 to 40 feet into the ground to provide bearing. All this work—dredging the channel, clearing and grading the site, driving piles, pouring concrete slabs and bases, and erecting plant facilities—though only part of the preparation for work on the bridge,

THE SURVEYOR'S NOTEBOOK

Reporting on Unusual Surveying Problems and Their Solutions
Notekeeper: W. & L. E. Gurley, Established 1845

A Few "Tricks of the Trade"

Unusual Field Tips Suggested by Readers of "The Surveyor's Notebook"

A Louisiana engineer has come up with an interesting method of locating shot points during seismograph surveys. The shot location was practically inaccessible in the bayous. However, general direction was known from two points on a base. When the shot was sent off, considerable dirt and smoke were blown into the air; and two transits intersected the shot to give location close enough for practical purposes. (*Speaking of inaccessible sights,* the Gurley Telescopic Solar Transit quickly gets around obstructions with sun shots. Procedure of carrying a line forward with a Gurley Solar eliminates one man from a party. The time and labor saved "pay off" the instrument in a few seasons. Write for information on Model 112-RT.)

Gurley Telescopic Solar Transit

* * *

For night work, an automobile spotlight can aid the surveyor greatly. One engineer directs his vertically... uses suspended plumb lines at right angles to each other to plumb the beam. The beam is used for signaling when the transit party is to take the sight... sight is taken on the vertical beam when it appears in the sky.

* * *

Some engineers ask for horizontal stadia lines on their transit reticles. This permits use of a horizontal rod—or even a common tape—for measuring distance. Using a right angle prism or Locke hand level with a right angle, a line is laid off perpendicular to the line of sight; and two targets such as pins or range poles are set on this line so that they are exactly matched to horizontal stadia. Distance between the two can then be measured, giving a means of determining stadia distance.

* * *

Can you use these field aids? *Gurley can supply 50-pound test yellow nylon plumb bob cord, to add to the visibility of your string in poor lighting. Also a cord adjustor, which helps you make quick changes in line length in the field. Send 25 cents in stamps or coin for a set of cord and adjustor with a drawing showing how to use them.*

* *

"The Surveyor's Notebook" collection (Series Two) is packed with valuable tips like these. More than 40,000 surveyors and engineers are finding them helpful. Write for your free copy ...At the same time, why not send us your own story?

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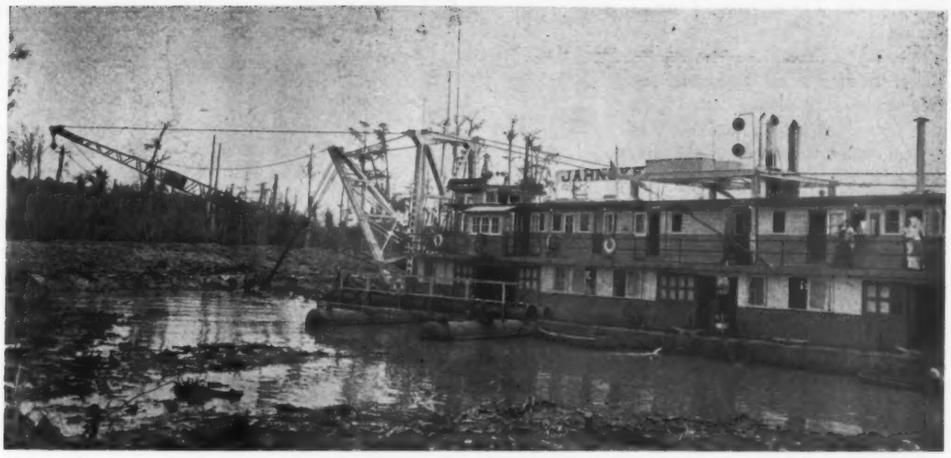
Mile Causeway Project



Digging through the clay and cypress roots of the swamp, the 20-inch hydraulic dredge, the Paul F. Jahncke, excavates the 2,000-foot-long channel through which barges will carry prestressed bridge sections from the casting yard to the work site.

constituted a major construction project in itself.

Dredging channel

The work of making a channel from navigable water in the lake through the shallows and into the swamp where the casting yard is located was started in February by the Paul F. Jahncke, a hydraulic dredge owned by Jahncke Service, Inc., New Orleans. Launched about two years before the start of this job, the dredge is of all-steel construction with the exception of parts of the living quarters on the second deck. The 32 × 130 × 8-foot hull carries machinery on the first deck and has complete living accommodations for the crew on the second.

A GM 900-hp diesel engine drives the 20-inch Mobile Pulley & Machine Co. pump through a reduction gear which steps the 750-rpm governed speed of the engine down to 300 rpm on the pump. The 71-foot ladder on the bow carries a 5-blade 60-inch manganese-steel basket cutter, which is driven at 26 rpm by a Westinghouse 200-hp motor. Since there were a large number of cypress stumps in the material being excavated, a shield was installed between the blades of the cutter to keep out these tough roots.

Swing gear, spuds, and ladder hoist are operated by Mobile Pulley & Machine Co. hoists powered with Ideal 35-hp motors and controlled by Westinghouse air controls. Electrical energy is generated by a Baldwin De La Vergne 448-hp diesel engine driving a Westinghouse generator. Auxiliary power is generated by a Winton 135-hp diesel generator set.

The floating 20-inch discharge line is made up of 48-foot sections of Spiralweld pipe fitted with Mobile Pulley & Machine ball-and-socket joints and supported on cylindrical steel floats. When pumping through long discharge lines, the dredge was assisted by a booster which was also

(*Continued on next page*)

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For fast, easy cutting, chipping, pointing or drilling in concrete. Ten times faster than by hand!

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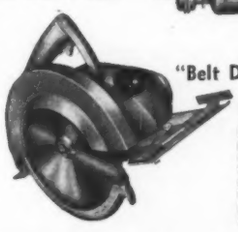


Deliver full cutting power to the blade—no bucking or jerking when cutting wood, tile, concrete block, plaster board, etc. 8" and 10" blades—2-13/16" and 3-1/4" cuts.

Write today for complete tool catalogue—Free

SYNTRON COMPANY

227 Lexington Ave. Homer City, Pa.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 538

powered by a GM 900-hp diesel engine.

Starting about 1,000 feet from shore, the dredge cut a channel 150 feet wide on the bottom with 1 on 2 side slopes and a minimum depth of 12 feet. When it reached the natural shoreline, the dredge continued right on into the swamp for several hundred feet. Then it turned 90 degrees to dig a dogleg channel to serve the pile-handling area. The entire channel, approximately 2,000 feet long, was completed about April 1.

Muck and clay dredged from the lake bottom and the swamp were discharged on the swampy portion of the plant site to raise the ground from approximately lake level to about six feet above the water. This fill was extremely wet and soft at first, but as it dried out it developed enough bearing to support some equipment. Cranes and some other larger machines operated on mats on the fill during succeeding operations.

The new Clark-Ross fork trucks just delivered to the job handle forms and other material at the fabrication yard, a 40-acre tract at Mandeville, La., on the north shore of Lake Pontchartrain.

Piles support slabs

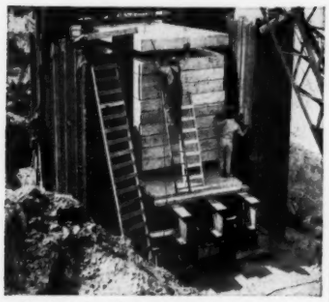
A large part of the yard was paved with a concrete slab to carry the mobile equipment being used to make and handle the bridge members. Even the areas under aggregate stockpiles had to be paved to keep them from sinking into the muck. Since the soft hydraulic fill could not be counted on to support the loads, timber piles were driven throughout the area.

Where they were to support concrete slabs, the 35 to 40-foot piles were driven in a gridiron pattern at 4 to 10-foot spacings. In most cases they were driven down to grade. Where necessary, they were cut off with a Homelite electric chain saw powered by a Homelite generator. The bulk of the pile-driving job was done by a Manitowoc 3500 and a Lima 604 crane with Vulcan No. 1 steam hammers. Groups of piles were driven at much closer spacings under some of the footings for stationary plant equipment, such as the overhead cranes and concrete-mixing plant.

The little grading that was necessary was made a difficult job by the soft and wet material. Draglines working from mats were most successful with this work. Northwest 78 and 8 cranes with Hendrix 2-yard drag buckets did a large part of the job, assisted by a Lorain 50 with Hendrix 1-yard bucket. As the material dried out and was worked over, an Allis-Chalmers HD-19 tractor-dozer was able to work in some areas.

Typical of the concrete slabs in the

BIG HEAD START ON DEADLINE WITH FOSTER RENTAL STEEL—SHEET PILING



Checking Foundations with 120-Ton Load on H-Bearing Frames Anchored to Foster Piling

Hotel - Department Store - Parking Facility
THE DENVER COLORADO PROJECT

Contractors Webb & Knapp got a *Head Start* on this gigantic project by calling Foster for rental steel-sheet Piling, to complete four sumps (that were holding up the major excavation of this 400-foot square foundation). Foster delivered *on time*, the exact sections and exact lengths of steel-sheet Piling needed to get a head start on work schedules.

Foster 12"x 53 lb. H-Bearing Piles driven an average depth of 50 feet, around perimeter of the gigantic 400 foot excavation.

Whatever You Need in Piling Call L. B. FOSTER for Service

- STEEL-SHEET PILING
- H-BEARING PILES
- LIGHTWEIGHT PILING
- PIPE PILES

FASTER from FOSTER

Write for Catalogs C-9

RAILS • TRACK EQUIPMENT • PIPE • FABRICATION

L.B. FOSTER co.

PITTSBURGH 30 • NEW YORK 7 • CHICAGO 4
ATLANTA 8 • HOUSTON 2 • LOS ANGELES 5

For more facts, circle No. 539

More And More Manufacturers Are Installing
MARVEL SYNCLINAL FILTERS
AS STANDARD EQUIPMENT

Manufacturers of hydraulically actuated equipment and others with low pressure liquid circulating systems demand their equipment to perform consistently and with all the productive efficiency they build into the machine that bears their name. Since these systems must be kept free of damaging particles, the selection of a filter is an important factor. Here are some of the outstanding reasons for the increasing preference for Marvel Synclinal Filters to do this all-important job!

SUMP TYPE (Cutaway)

BECAUSE . . . Marvels are designed to give maximum ACTIVE filtering area rather than total filtering area. Only ACTIVE FILTERING AREA COUNTS!

BECAUSE . . . Marvels greater storage space for filtered out particles allows longer periods of "production" time at absolute minimum in maintenance cost and "down-time."

BECAUSE . . . Marvels can be disassembled, cleaned and reassembled by any workman in a matter of minutes. Line type operates in any position and may be serviced without disturbing pipe connection.

BECAUSE . . . Marvels are protected and of sound construction to give long life and efficient filtration. **They meet J. I. C. Standards.**

BECAUSE . . . Marvels (Both Sump and Line Type) are available in individual capacities from 5 to 100 G.P.M. and choice of mesh sizes ranging from coarse 30 to very fine 200, they get a filter to fit their specific requirements.

BECAUSE . . . Marvel not only delivers a top grade filter in both quality and performance, but delivers IMMEDIATELY—shipments are made the same day orders are received, if desired.

LINE TYPE (Cutaway)

FACTS — NOT CLAIMS
Engineers decide on the basis of the record, on the basis of measurable facts rather than claims of the "campaign promise" variety. Here is a fact with meaning!

OVER 600 MANUFACTURERS MAKE MARVEL SYNCLINAL FILTERS THEIR O.E.M. CHOICE

FOR DEPENDABLE PROTECTION ON ALL HYDRAULIC AND OTHER LOW PRESSURE SYSTEMS — Investigate MARVEL SYNCLINAL FILTERS

WATER FILTERS
Both sump and line type filters have been adapted for use in all water filtering applications. No changes have been made in the basic, balanced synclinal design.

FILTERS FOR ALL TYPES OF FIRE-RESISTANT HYDRAULIC FLUIDS
Marvels most recent development is a filter for the efficient filtration of all types of fire-resistant hydraulic fluids.

VISIT OUR EXHIBIT at the PRODUCTION ENGINEERING SHOW
Booth #809 — Navy Pier — Chicago, Ill. — SEPT. 6 to 16.
See MARVEL SYNCLINAL FILTERS in Action!

MARVEL ENGINEERING COMPANY
625 W. Jackson Blvd. Chicago 6, Ill. PHONE: FRanklin 2-4431

Without obligation, please send me complete data on MARVEL SYNCLINAL FILTERS as indicated—
☐ Catalog #106 For Hydraulic Oils — Coolants — Lubricants ☐ Catalog #300 for Water
☐ Data on Filters for Fire-Resistant fluids

Name ..... Title .....
Company .....
Address .....
City ..... State ..... (CE-9)

For more facts, use Reader-Reply Card opposite page 18 and circle No. 540

THIS *is the* CLAMP...

That is easiest to attach; provides strong, full-circumference grip on the hose; and can be used again and again . . . always with same sure holding power.

"KING" SINGLE *and* DOUBLE BOLT HOSE CLAMPS

Made of tough, durable malleable iron . . . completely rustproofed. Full-width tongue between reinforced bolt lugs prevents pinching and damaging hose. Bolts are carefully machined and threaded for maximum ease of application.

Single bolt style, sizes ⅞" to 5¼"; double bolt style, sizes 3½" to 17¼".

Double Bolt

Stocked by Manufacturers and Distributors of Industrial Rubber Products

DIXON Valve & Coupling Co.

GENERAL OFFICES & FACTORY—PHILADELPHIA 22, PA.
BRANCHES—CHICAGO · BIRMINGHAM · LOS ANGELES · HOUSTON
DIXON VALVE & COUPLING CO., LTD., TORONTO, Associate Companies

For more facts, circle No. 541

area is the 12-inch reinforced slab under the aggregate stockpiles. After the piles had been driven and cut off to grade, the area was brought to finished grade by hand, a heavy reinforcing mat was tied into position, and concrete placing began.

Concrete for this part of the construction was dry-batched from a plant set up at a rail siding about a half mile from the job. Trucks hauled the batches to a Koehring 27-E paver on the job site. The boom and bucket had been removed from the paver, and the concrete was discharged from the drum directly into a 1-yard lay-down bucket. A Northwest 6 crane swung this bucket from the paver to the slab, where the concrete was worked into place and screeded to grade by hand methods.

The aggregate storage area is divided into four sections to handle four sizes of material. A row of long piles left protruding up to 20 feet into the air acts as a divider between the sections. These piles are guyed by cables anchored to other piles. Plank walls attached to both sides of the upright piles separate the stockpiles. An Armco 96-inch recovery tunnel runs the full length of the stockpile, and gates in the tunnel permit any grade of material to be delivered to the recovery conveyor in the tunnel.

Big concrete plant setup

The big Johnson concrete plant providing concrete for all the precasting operations now being done rests on special concrete footings supported on piles. The plant contains three Koehring 3-cubic-yard mixers mounted on the first platform of the steel tower. The big Johnson bins and Weigh Batchers are mounted on the tower above the mixers. An inclined conveyor leads from the aggregate stockpile to the bins. The big plant was assembled by a crew of workmen with the aid of a Manitowoc 3900 crane.

Other equipment set up on the site includes three large Whiting overhead cranes on rails in the pile fabrication and storage areas, as well as special form-handling equipment in the area where the deck sections are being cast. A big gantry crane also in this area transports the finished deck sections from the casting bed to barges which ply between the yard and the erection site.

Precasting operations

The post-tensioned concrete piles being produced in the yard are 54 inches in diameter and average 90 feet long, and the 2,200 complete deck sections being cast and pre-tensioned are 33 feet wide and 58 feet long. Each of the more than 2,200 bridge piers will consist of two concrete piles supporting a precast-concrete cap. The piles are concrete cylinders with 4-inch-thick walls. Sections 16 feet long are cast in a horizontal position in a rapidly spinning mold. With high-strength low-slump concrete, this spinning process produces a very dense mix with a compressive strength of 8,000 psi. Mandrels in the cylinder walls are withdrawn when the piles have been cast, leaving 12 holes for the pre-tensioning cables. These holes are spaced evenly in cross section and extend completely through the 16-foot section.

After spinning, the pile section—still in its steel mold—is removed from the casting machine and stood on end. Then the steel mold is stripped, and the section is cured by steam and curing compound.

Five of these 16-foot sections and one 8 or 10-foot section are assembled

(Concluded on next page)

Leveling work on the fill material is being done by an Allis-Chalmers HD-19, while a Lorain 50 crane with Hendrix 1-yard bucket excavates a footing trench for the casting bed.

BOOST DIESEL OUTPUT

with less fuel...less noise...less smoke

AiResearch Turbochargers give your stationary or mobile diesels more added horsepower than any comparable turbocharger or supercharger installation!

The application of AiResearch Turbochargers to stationary diesel equipment will overcome excessive noise and smoke problems... jump horsepower to a much higher level... and cut your fuel bills on a horsepower per hour basis.

In addition, it will restore operating efficiency for your diesel power plants at altitude.

Application of these finely engineered power packages to mobile diesel equipment is equally effective... as has already been demonstrated in the remarkable results achieved by the installation of AiResearch Turbochargers on Caterpillar diesel machinery.

AiResearch is the largest producer of small turbomachinery in the United States, with twenty-five *million* hours of experience. This unmatched experience explains why AiResearch Turbochargers lead in power, economy and dependability. Your inquiries are invited.

THE GARRETT CORPORATION

AiResearch Industrial Division

9225 Aviation Blvd., Los Angeles 45, California

DESIGNERS AND MANUFACTURERS OF TURBOCHARGERS AND RELATED MACHINERY

For more facts, use Reader-Reply Card opposite page 18 and circle No. 542

end to end on the stressing platform to make up a typical 90-foot pile. Twelve 0.192-inch high-tensile wires are then strung through each of the twelve holes for the full length of the pile. A stressing ring with Freyssinnet-type anchors is attached to each end of the pile, and the wires are stressed with Freyssinnet hydraulic jacks. Non-shrinking cement grout forced into the holes fills the space around the wires. When the grout has hardened, the stressing rings are removed from the ends of the piles, and the wires are cut off flush.

Finished piles are picked up by a crane using a two-point pickup, loaded onto barges, and transported by water to the bridge site. These piles are driven by large steam hammers and by jetting.

The concrete pile caps and deck sections are also being cast in the Mandeville yard. Deck sections consist of seven T-shaped pre-tensioned concrete girders 4 feet deep, and a 6½-inch deck slab. Each section spanning 56 feet, includes the complete 28-foot roadway, plus walkway, curbs, and rails. The sections are 33 feet wide over-all and weigh 190 tons each.

Using 24 sets of specially designed steel forms, the contractor is producing the deck sections in a four-day cycle which includes one day of steam curing. The completed and cured sections are loaded directly on barges and transported to the bridge site.

Personnel

Project manager J. E. Walters of Louisiana Bridge Co. supervised the construction of the casting yard and facilities, and is supervising the larger job of building the bridge. Among his assistants are project engineer D. W. Milhan, general superintendent Stanley Ibenthal, plant superintendent J. Quillen, and night superintendent Walton Gasaway.

At the peak of construction on the plant facilities, there were about 500 men working two 8-hour shifts six days a week. Consultants to the contractor on these operations were Raymond Concrete Pile Co., New York, N. Y., on the piling, and Freyssinnet Co., Inc. also of New York, on the prestressing. Captain of the dredge Paul F. Jahncke is Joe Boudroux, and chief engineer is I. F. Bennett.

The consulting engineer, Palmer & Baker, Mobile, Ala., was represented on the work by Gen. J. J. Twitty, resident engineer. Chairman of the joint committee representing the two participating parishes is J. J. Holtgreve, chairman of the Police Jury of Jefferson Parish. THE END

The wood piles are cut off with a Homelite electric saw powered by a Homelite generator. A concrete slab over these piles will provide a platform for equipment handling the reinforced-concrete piles for the bridge.

Timber-connecting devices

■ Timber-connecting devices and other metal building specialties are listed in a comprehensive catalog from Cleveland Steel Specialty Company, Inc., 3781 East 91st St., Cleveland 5, Ohio.

Among items shown are steel cross bridging, grooving tools, joist hangers, and timber rings.

Set into timbers in pre-cut grooves, the Cleveland timber rings make strong joints in wood truss construction, and in wooden arches, bridges, and towers.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 633.

Steel-framed plywood forms feature easy erection

■ A brochure showing the principal uses, features, and new applications of Atlas Compo forms for concrete construction has been issued by the Irvington Form & Tank Corp., 20 Vesey St., New York 7, N. Y.

These forms are completely assembled true-edged units consisting of a steel frame and plastic-coated plywood forming faces. Light in weight and easy to handle, the forms can make square, round, or irregular concrete structures.

A simple tie assembly using a flat bar tie, key, and wedge; quick, accurate alignment; and the strength and rigidity of the steel frames and plywood faces are among features illustrated.

Atlas Compo forms are available in 4, 5, 6, 7, and 8-foot heights, and in 12, 16, 20, and 24-inch widths.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 615.

Another Cleaver-Brooks boiler in action!

Portable steam with a PUNCH helps make bridge go up faster

American Bridge Division, United States Steel Corporation, teams Cleaver-Brooks 125 hp boiler — with advanced methods of bridge construction

• Piles for this new bridge at Wheeling, W. Va., were driven at a rapid rate because constant steam pressure from a portable boiler assures smooth, powerful hammer action. Fast-steaming, clean, smokeless operation means extra economy, too. Modern push-button controls assure a full head of steam in 30 minutes or less from a cold start. Variations in hammer sizes or steam requirements present no problem — boiler operates at 80% efficiency from full load down to 30% of rating.

Use Cleaver-Brooks boilers anywhere. Here, skid-mounted unit is conveniently placed next to crane pile-driver. Service connections are conveniently located. Set boiler on blocks . . . and you're all set to go.

More facts on this modern, high-efficiency, portable or mobile self-contained boiler

- **TWO SIZES:** 80 and 125 hp, 150 lbs. working pressure
- **GASOLINE ENGINE** or electric powered, light oil-fired
- **TRAILER OR SKID-MOUNTED,** all-weather protected
- **SELF-CONTAINED,** compact, heavy-duty plant
- **CONSTANT STEAM PRESSURE** through automatic low and high fire control
- **ALL-YEAR USEFULNESS** — besides pile-driving and extracting, use boiler for asphalt plant, ready-mix and winter concrete operations, thawing and miscellaneous heating.

For complete details write for bulletin "Modern Pile-Driving and Extracting." Cleaver-Brooks Company, Dept. K., 391 E. Keefe Ave., Milwaukee 12, Wisconsin

Cleaver Brooks

BUILT WITH THE FAMED FOUR-PASS HIGH-EFFICIENCY DESIGN BY THE ORIGINATORS OF THE SELF-CONTAINED BOILER

For more facts, use Reader-Reply Card opposite page 18 and circle No. 543

The new Stow RW angle head makes the grinding attachment much easier to maneuver than when it is connected directly to the flexible shaft.

New angle head for wet rubbing

■ A new angle head for wet rubbing of concrete has been placed on the market by Stow Mfg. Co., 40 Shear St., Binghamton, N. Y. This angle head makes the Stow grinding attachment much easier to maneuver than when it is connected directly to the flexible shaft.

The RW angle head has a bronze gear and a hardened-steel worm gear. It has an attachment for a water hose so that water may run through the center of the grinding wheel onto the concrete.

The new angle head is available in ratios of 5 to 1, 8 to 1, 10 to 1, and 18 to 1. It has ⅝-inch 11 male threads making it simple to connect to 4½-inch and 6-inch cup wheels and 7 and 9-inch abrasive disks.

For further information write to the company, or use the Request Card that is bound in at page 18. Circle No. 663.

All-purpose hole digger

■ A versatile hole digger that operates from the back of a jeep or small truck is described and illustrated doing a number of different jobs in a bulletin from Acker Drill Co., Inc., 725 W. Lackawanna Ave., Scranton 3, Pa. Two models of the Acker AP hole digger are treated in the literature.

Capacities of both the power-takeoff model and a skid-mounted model with self-contained power plant include ability to dig a 20-inch-diameter hole, digging capacity to a depth of 75 feet with 6-inch continuous-flight augers, maximum hydraulic thrust of 4,700 pounds, and a digging angle of 360 degrees. The power-takeoff unit weighs 1,150 pounds; the skid-mounted machine, 1,750 pounds.

Among applications of the AP hole digger suggested and illustrated in the bulletin are soil sampling, pipe driving, highway test-core drilling, and blast-hole drilling.

Features highlighted in the literature include a patented hydraulic system, built-in reverse and neutral, the ability of the rig to dig at any angle, conveniently grouped fingertip controls, and the machine's compactness and portability.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 679.

For more facts, circle No. 544→

Blade cuts green concrete

■ The Champion Mfg., Co., 2028 Washington Ave., St. Louis, Mo., offers the Con-Flex blade as its latest contribution to the concrete-cutting.

The Con-Flex C-300 is used for cutting very green concrete (6 to 12 hours old) with slag, limestone, or dolomite aggregates. Because of this feature, says the manufacturer, the new blade provides an inexpensive means of cutting contraction joints for highways, sidewalks, etc.

For further information write to the company, or use the Request Card at page 18. Circle No. 696.

The Champion Con-Flex C-300 blade.

STANOLITH MP Grease—a single grease—lubricates all equipment at Wright Mine

THE BOONVILLE COLLIERIES Corporation's Wright Mine uses STANOLITH MP Grease to lubricate all grease-lubricated bearings. To Wright Mine management this is good business. Using a single but multi-purpose grease, the management finds, cuts grease inventories, reduces grease dispensing equipment and, in application, eliminates costly dispensing mistakes.

Roller, ball, plain, and needle bearings are lubricated by this one grease. This applies to all mine equipment—Marion stripper, loading shovel and dragline; 7 Euclid 45-ton coal haulers; two Caterpillar D8 Bulldozers and two International Harvester tractors.

Using STANOLITH MP Grease saves Wright Mine money. It can save you money, too. Find out. In the Midwest, call your nearby Standard Oil lubrication specialist. Or contact Standard Oil Company, 910 South Michigan Avenue, Chicago 80, Illinois.

Marlin Carter, Wright Mine pit foreman (right), and Oscar Daussman, Standard Oil lubrication specialist, discuss equipment lubrication. Oscar is an old hand at providing technical service on lubrication problems. He has had more than 30 years' experience with Standard Oil, much of it working with customers on such lubrication jobs as this one at Wright Mine. Customers find this experience pays off for them.

STANDARD

STANDARD OIL COMPANY
(Indiana)

NAMES IN THE NEWS

Claxton and Muirhead elected officers of BRI

Edmund Claxton and William Muirhead have been elected president and vice president, respectively, of the Building Research Institute, Washington, D. C., a technical society for the building industry. Mr. Claxton, director of research for the Armstrong Cork Co., Lancaster, Pa., replaces Fred M. Hauserman, president of the E. F. Hauserman Co., Cleveland, Ohio. Mr. Muirhead, president of William Muirhead Construction Co., Durham, N. C., is a representative to the institute for the Associated General Contractors of America.

The six new board members, appointed for six-year terms, are Charles W. Attwood, Unistrut Corp., Wayne, Mich.; John F. Hennessey, Syska & Hennessey Inc., New York, N. Y.; Robert K. Mueller, Monsanto Chemical Co., Springfield, Mass.; Otto L. Nelson, Jr., New York Life Insurance Co., New York, N. Y.; Andrew Place, Place & Co., South Bend, Ind.; and Charles H. Topping, E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.

Stone & Webster Corp. construction manager

William L. Sheets has been appointed a construction manager of Stone & Webster Engineering Corp., Boston, Mass., and will maintain headquarters in the Boston office.

Mr. Sheets joined the Stone & Webster organization in 1929. Since 1954, he has been general superintendent of construction in the west coast area and has served as manager of the engineering firm's Los Angeles office.

Roadside supervisor named in Pennsylvania

Franklin J. Moyer has replaced Wesley L. Hottenstein as supervisor of roadside development for the Pennsylvania Department of Highways.

He has had extensive experience in forestry work, has worked for the National Park Service at Hopwell Furnace, Pa., and has served as city forester for Reading, Pa.

Vice president named for Kaiser division

T. A. Bedford, an executive with various Kaiser affiliated companies for the past 23 years, has joined Kaiser Engineers Division of Henry J. Kaiser Co. as vice president.

Joining the Kaiser organization in 1932, Mr. Bedford worked on the construction of Grand Coulee Dam before becoming construction superintendent of Kaiser Shipyards at Richmond, Calif. He became manager of the Long Beach, Calif., assembly plant when Kaiser entered the automotive field, and in 1947 was transferred to Detroit as general manager of the company's Detroit Engine Division. Prior to his present appointment, he served 10 years with Kaiser Motors Corp. at the Oakland, Calif., headquarters, and Willys Motors, Inc., becoming director and vice president of the firms.

California road engineer joins Asphalt Institute

A veteran California highway engineer, Don G. Evans, has been made a district engineer for The Asphalt Institute, College Park, Md. He will serve southern California and Arizona from his Los Angeles headquarters.

A civil engineering graduate of Rose Polytechnic Institute in Terre Haute, Ind., Mr. Evans was a mining engineer in Central America and the western United States for nine years before joining the U. S. Bureau of Public Roads.

Except for the war years, when he was with the U. S. Army Corps of Engineers as a highway engineer and later as chief of military construction in eight western states, Mr. Evans served with the California Division of Highways.

William E. Dickinson, chief engineer for the Calcium Chloride Institute.

Calcium chloride group names chief engineer

As the new chief engineer for the Calcium Chloride Institute, Washington, D. C., William E. Dickinson will be responsible for engineering, research and technical activities for all uses of calcium chloride. He will also direct the work of all field engineers on the staff of the institute, a nonprofit engineering service organization which does research on the uses of calcium chloride.

Mr. Dickinson, a civil engineering graduate of Ohio State University, has been with the institute since 1946. He has served with the U. S. Army Corps of Engineers, seen active duty with the U. S. Navy in World War II, and worked for a consulting engineering firm. He is a registered professional engineer in the branch of civil engineering, State of Ohio, and is a member of the American Society of Civil Engineers and the Engineers Club of Washington. Mr. Dickinson serves as a member of the Highway Research Board Committees on winter maintenance and secondary roads, and on the ARBA Committee on winter maintenance.

COMFORT KEEPS HATS ON —

ANY safety hat protects the wearer *only* while it is worn. The GENTEX safety hat is specially engineered for maximum comfort to assure *full time* wearing for *full time* protection.

Only the GENTEX has a resilient, contoured plastic headband that shapes itself to the head, exerting no pressure even after a full shift's wear. It's lightweight . . . and cool even under the hottest sun.

It *really* protects! Tough GENTEX safety hats exceed all Federal specifications as well as standard mechanical, electrical and fire tests for protective headgear.

If you want to safeguard your men with a hat they'll *like* . . . and *wear* . . . give them GENTEX. Write for the complete story about these remarkable safety hats! Do it NOW!

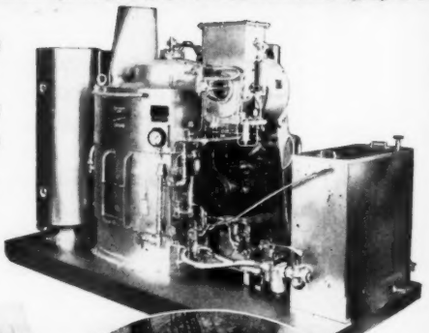
General Textile Mills, Inc.
450 Seventh Ave. — N. Y. 1, N. Y.

For more facts, circle No. 545

only the Littleford "Kwik-Steam" Vapor Generator gives you steam in 2 minutes from a cold start!

"Kwik-Steam" indispensable for Pile Driving

- Produces steam only when needed
- Operates any kind of pile driving hammer
- You can take it where you need it—unit can be mounted on a truck, crane, trailer or skids
- Sizes from 40 to 165 B.H.P. with either electric motor or gasoline engine



"Kwik-Steam" . . .

- Saves floor space — occupies less area.
- Saves 50% in fuel and labor.
- Saves time — you get steam in two minutes flat from a cold start.

For further information, write today for bulletin 22.

LITTLEFORD

LITTLEFORD BROS., INC.
485 E. Pearl St., Cincinnati 2, Ohio

For more facts, use Reader-Reply Card opposite page 18 and circle No. 546

Booth & Flinn elect Stanley vice president

Elected vice president of Booth & Flinn Co., Pittsburgh, Pa., is L. S. Stanley, who has been contracting engineer for the firm for the past two and a half years. He will continue to supervise the engineering of industrial foundations and other heavy construction.

A 1929 graduate of Ohio State University, Mr. Stanley joined Booth & Flinn in 1930 as a field engineer for the construction of the Gulf Building foundation in Pittsburgh. He later served the firm as superintendent, designer, and office engineer. He is a registered professional engineer in Pennsylvania and New York and is an associate member of the American Society of Civil Engineers.

Burl A. Sawyers, who has succeeded H. K. Griffith as the West Virginia State Road Commissioner.

State road commissioner named in West Virginia

The new state road commissioner of West Virginia is Burl A. Sawyers, a registered professional engineer and a resident of Charleston. He was appointed by Governor William C. Marland to succeed H. K. Griffith.

Commissioner Sawyers attended Concord College at Athens, W. Va., and before his present appointment he was administrative assistant to the governor. He holds membership in the West Virginia Society of Professional Engineers.

Abram made chief engineer for Tellepsen projects

The newly created post of chief engineer of heavy engineering and highway projects in the engineering division of Tellepsen Construction Co., Houston, Texas, has been filled by William A. Abram.

A civil engineering graduate of the Iowa State College, Mr. Abram has been directing heavy construction projects for Tellepsen for the past seven years. He worked in the design section of a bridge-construction firm before becoming owner and operator of a construction company. He became associated with Tellepsen Construction Co. in 1948, and has worked on projects in the U. S. and Alaska.

Raymond Concrete Pile names sales engineer

A new sales engineer in the Los Angeles district for Raymond Concrete Pile Co., New York, N. Y., is Howell T. Hunt. He is making his headquarters in the Los Angeles office at 816 W. Fifth Street.

Mr. Hunt is a mechanical engineering graduate of Tulane University, where he also took special courses in geology and soil mechanics. After two years' in a supervisory capacity on refinery and dock construction in Arabia and France, he joined the Raymond organization as a project engineer on air-base construction in France for the U. S. Air Force. For the past year he has been engineer in Raymond's development of prestressed concrete products in the Gulf States area.

Col. Milton P. Barschdorf, secretary of the Mississippi River Commission and Assistant division engineer for the Lower Mississippi Valley Division, U. S. Army Corps of Engineers.

Secretary is named for river commission

Assisting Brig. Gen. John R. Hardin in the supervision of the U. S. Army Corps of Engineers flood control and navigation improvements within the Lower Mississippi Valley Division is Col. Milton P. Barschdorf. As the new secretary of the Mississippi River Commission and assistant division engineer, he replaces Col. Charles F. Mitchim, who was recently transferred to SHAPE. The lower Mississippi Valley Division extends from near Hannibal, Mo., to the Gulf of Mexico.

Turnpike Commission in Pennsylvania elects

G. Franklin McSorley of Pittsburgh, Pa., has been elected chairman of the Pennsylvania Turnpike Commission, replacing T. G. Evans, who has resigned.

Mr. McSorley was appointed a member of the commission in February, by Governor George M. Leader. He is the third man to be named as chairman.

For more facts, circle No. 548→

Baltimore Contractors opens New York offices

Baltimore Contractors, Inc., Baltimore, Md., has opened New York City offices at 51 E. 42nd St. and has named Edmund J. Naughton and Carl E. Christenson as company representatives there.

Mr. Naughton, active in the construction field since 1918, was formerly a general contractor in the New York City area. He holds a degree in construction engineering from the City College of New York.

Mr. Christenson gained his early construction experience working for his father's company, Charles E. Christenson & Sons, Jersey City, N. J. He is a member of the Professional Engineering Society of New Jersey.

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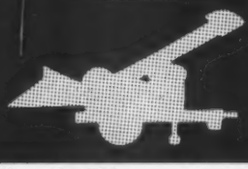

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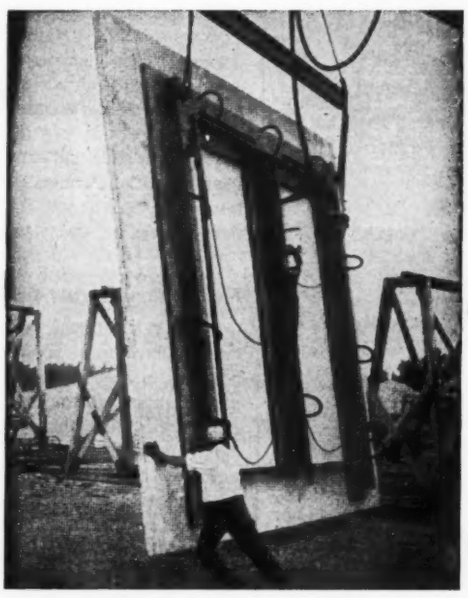

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EARLY STRIPPING — EARLY ERECTION

VACUUM CONCRETE, INC.
4210 Sansom Street • Philadelphia, Pa.

Contractor: Concrete Casting Co., Kansas City, Mo.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 547

The new International R-120 light-duty truck.

New light-duty truck with four-wheel-drive

■ A four-wheel-drive light-duty truck with power and traction to travel fully loaded in mud, sand, or snow has been introduced by the motor truck division of International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill.

The Model R-120 (4×4) has a gross vehicle-weight rating of 7,000 pounds, and is offered in four wheelbase sizes ranging from 115 to 134 inches. Designed with a minimum body and step height comparable to that of a standard truck, it is available with pickup, stake, or flat-bed body, or as chassis and cab for a special body. It can be operated on hard-surface roads as a conventional rear-wheel-drive truck, while the front-axle drive can be engaged quickly and easily by a shift lever.

With the standard three-speed transmission, six forward and two reverse speeds are provided. With either of the two optional four-speed transmissions, eight forward and two reverse speeds are available. Power-takeoff opening is available on the left side of the optional WT-9 transmission, and provision is being made in the transfer case design to supply a left-side-mounted full-torque power-takeoff driving to either front or rear.

The Model R-120 is powered by the 108-hp International Silver Diamond 220 engine, with maximum torque of 179 to 1,600 rpm. The 131-hp Silver Diamond 240, and new 11-inch clutch, are optional. Standard tires are 6.50 ×16, with options including sizes through 7.50×15, with 9.00×16 eight-ply single front and rear tires available for added flotation. A 7.00×18 tire for front and rear also is available where high road clearance is required.

A wide selection of wheelbases and bodies is available. Wheelbases are 115, 122, 127, and 134 inches. The 6½, 8, and 9-foot pickup bodies are available as optional equipment. The 122-inch wheelbase model with 48-inch CA dimension is adaptable to installation of special utility company bodies. The 7½ and 8½-stake bodies also are available optionally.

For further information write to the company, or use the Request Card at page 18. Circle No. 698.

LO-HED Reinforced Concrete Pipe for Culverts and Sewers

Greater Capacity . . . Faster, Easier Installation . . . Less Cost!

Elliptical LO-HED Pipe carries a greater flow than its round equivalent—in a minimum depth of cut with increased depth of cover. LO-HED Pipe is easier to lay, to grade and line. Smooth walls and tight joints insure maximum hydraulic capacity, with a minimum build-up of debris in the invert, even under low-flow conditions. Furnished in pre-tested strengths to answer any low headroom problem, including culverts under highways and railroads.

Write today for specifications on time and money-saving LO-HED Reinforced Concrete Pipe.

A full range of sizes in LO-HED Pipe is available for nearly all culvert and drainage installations. Shown above are the LO-HED equivalents of round pipe sizes 18″—24″—30″—36″—90″—120″.

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CONCRETE PRODUCTS DIVISION
GENERAL OFFICES
AMERICAN-MARIETTA BUILDING, 101 EAST ONTARIO STREET, CHICAGO 11, ILLINOIS PHONE: WHITEHALL 4-5600

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Concrete Conduit Company
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Lewistown Pipe Company
Universal Concrete Pipe Co.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 549

Dual-roll trench roller adjusts compaction width

■ Bulletin No. 2497, which describes the Model DTR-552 dual-compression trench roller, the newest addition to the Blaw-Knox line of road-building equipment, is available upon request.

One of the unique features of the trench roller is that the rolls can be adjusted for wide or narrow strip compaction while the machine is in motion.

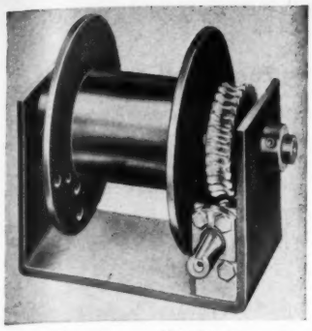
Two 60-inch-diameter rolls are driven by differential drive, with separate hydraulic brakes on each roll.

To obtain this bulletin write to Blaw-Knox Co., Farmers Bank Bldg., Pittsburgh, Pa., or use the Request Card at page 18. Circle No. 616.

Napco Industries news

Roger B. Huffman and William Delaney have been appointed to key positions in the construction equipment division of Napco Industries, Inc., Minneapolis, Minn.

Mr. Huffman, formerly chief engineer of the Knickerbocker Co., Jackson, Mich., is serving as chief engineer on the line of Napco self-contained front-end loaders. Mr. Delaney, formerly service manager for U. S. Thermo Control and the Baker-Lull Corp., Minneapolis, is now service manager with Napco.



The Little Giant self-locking worm-gear winch.

New worm-gear winch has self-locking drum

■ A self-locking feature that insures safety in operation is incorporated in a new worm-gear winch announced by Little Giant Products, Inc., 1530 N. Adams St., Peoria, Ill. Because of this safety device, there are no pawls or dogs to break, and the winch will not slip while being cranked.

Designed for applications where loads of up to 2,000 pounds are pulled, lifted, or carried in suspension, the unit is adaptable to either power or hand operation. The drum has a capacity of 150 feet of ⅛-inch cable or 80 feet of ¼-inch cable. Gear ratio is 29 to 1.

For further information write to the company, or use the Request Card at page 18. Circle No. 674.

New vertical auger drill

■ A new McCarthy vertical drill for highway construction, soil engineering, and general subsurface exploration is described in new bulletin from Salem Tool Co., S. Ellsworth Ave., Salem, Ohio. The Model 106-24 drill handles augers 6 feet long and up to 24 inches in diameter.

An auxiliary speed-reducing unit built integrally with the traveling carriage reduces rotary speed and increases torque for large-diameter augers. Two output shafts turn at different speeds: a normal speed for augers up to 8 inches and a slow speed for 12-inch-diameter augers.

Field installation pictures and specifications are included in the booklet, which also describes the McCarthy vertical Model 106-8 for augers up to 8 inches in size.

To obtain Bulletin M-100 write to the company, or use the Request Card at page 18. Circle No. 622.

District sales manager named by Chain Belt

Serving as western district sales manager for the construction machinery division of Chain Belt Co., Milwaukee, Wis., is Charles R. Angell, Jr. He is making his headquarters in San Francisco, Calif.

Before joining Chain Belt, Mr. Angell was associated with a construction machinery manufacturer as San Francisco regional supervisor, and had spent some time selling equipment for a West Coast construction-machinery dealer.

For more facts, circle No. 550→

Automatic batch plant

■ Operational features of its Model 894 BatchOmatic bituminous batch plant are described in a two-color folder available from Barber-Greene Co., 400 N. Highland Ave., Aurora, Ill.

Listed are seven basic principles involved in the design of the new batch plant. These include: simultaneous measuring of all aggregates; automatic measuring of both aggregate and bitumen; the new Dyna-Mix pugmill, which is said to achieve thorough mixing in less time than any other pugmill of comparable rated capacity; easy, low-cost erection; fully automatic operation; instant conversion from automatic to manual operation; instant check at any time of the weight of each ingredient or of the total bulk. Engineering and design features, as well as the separate stages of plant erection, are illustrated in the literature.

Construction and operation of the new high-capacity deck screen with which the Model 894 is equipped are illustrated and discussed, together with the aggregate and asphalt-measuring systems, the automatic electric control system, and the Dyna-Mix pugmill.

To obtain this folder, as well as Bulletin 890 on the entire Barber-Greene line of batch plants, write to the company, or use the Request Card at page 18. Circle No. 709.

McDowell appoints

Allan R. Rowen has been appointed sales engineer and head of the lightweight aggregate section of the Dwight-Lloyd Division of McDowell Co., Inc., Cleveland, Ohio. Mr. Rowen was formerly sales manager of the lightweight aggregate division of Sintering Machinery Corp., which was recently acquired by the McDowell organization.

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INSLEY
WORKING NEAR YOU
A PROVEN PERFORMER FOR HIGHWAY CONTRACTORS
Recognized as standard equipment by highway contractors for excavating and trenching—Insley's proven design characteristics give the contractor a dependable machine—simple to service, easy to maintain. Insley's rugged dependability means minimum down-time and more production hours.
The Insley Manufacturing Corporation of Indianapolis has been manufacturing construction equipment since 1907. The Insley Line includes excavators and cranes, 5 to 30 ton capacity—rubber or crawler mounted. Let your Insley distributor show you "an Insley at work."

A brush cutter mounted on the Homelite Model 17 chain saw cuts brush, weeds, and small saplings conveniently.

Brush cutter attachment converts chain saw

■ A new attachment that converts the Homelite Model 17 chain saw into an all-purpose brush cutter has been announced by Homelite Corp., 71 Riverdale Ave., Port Chester, N. Y. Designed primarily for use by land-clearing contractors, road crews, and pipeline layers, the new brush cutter is said to clean up brush and weeds four times faster than hand-clearing methods.

Powered for continuous use, the Homelite brush cutter has a flexible shaft which delivers 3½ brake horsepower to a 10-inch circular blade. Light weight and balance make the cutter easy to operate. A hanger and handlebars are adjustable, while a special harness evenly distributes the weight of the entire unit on both shoulders.

A diaphragm-type carburetor permits cutting in any position, while a 5-foot-long arm reaches low to get under overhanging branches or high for overhead cutting and limbing. The Homelite saw collar is said to prevent binding by weeds, leaves, or twigs.

For further information write to the company, or use the Request Card that is bound in at page 18. Circle No. 612.

New vibrator has motor in vibrating head

■ The one-man Master vibrator introduced recently is illustrated in a folder from Master Vibrator Co., 1752 Stanley Ave., Dayton 1, Ohio. This vibrator has the motor in the vibrating head and dispenses with the customary separate motor or engine and flexible shaft pulled along behind. This eliminates the need for a second man—hence the designation "one-man" vibrator. The unit operates from any regular 115-volt ac or dc outlet or a portable generator.

A comparison chart in the folder shows the simplicity of the new tool as contrasted with the usual design of separate motor and flexible shaft. The literature also lists available models with specifications, and contains drawings showing how the vibrator works.

To obtain Folder MV 1162 write to the company at 164 Stanley Ave., Dayton 1, Ohio, or use the Request Card at page 18. Circle No. 653.

Booklet discusses design of diesel-powered trucks

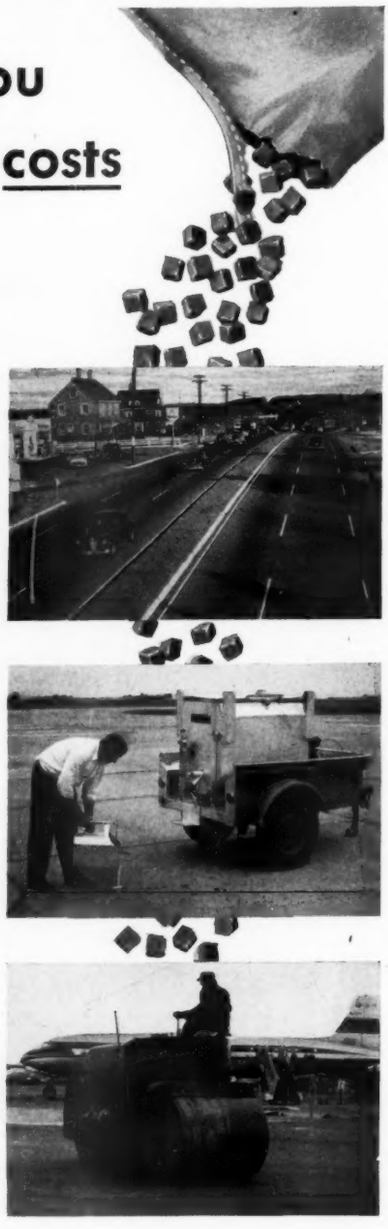
■ A new folder on Autocar diesel trucks illustrates the construction features of these hauling units.

Autocar diesel trucks are equipped with a Cummins diesel engine and are offered with a choice of rear axles, and a variety of transmissions to meet specific customer requirements. The literature points out, however, that more important even than the quality of the components is the way the components are matched—that is, the engineering of the Autocar trucks.

Featured in the literature is a lightweight model which includes a new all-aluminum driver cab. There is a 33 per cent weight difference in the aluminum cab alone, but aluminum has also been used liberally throughout the unit in engine parts, chassis cross members, transmission case and cover, rear housing, front and rear axles, hubs, hood, and front bumper. Even the wheels are of forged aluminum. Many parts are all-aluminum castings or weldments.

To obtain this literature write to Autocar Div., White Motor Co., Exton, Pa., or use the Request Card at page 18. Circle No. 648.

Let SEALZ help you save on all paving costs



Naugatuck Chemical's specially developed SEALZ rubber compounds for roads and runways can help give you pavements that *last longer,* require *less maintenance,* and *are easy and economical to apply.*

Surfa-SEALZ—a synthetic rubber additive for bituminous concrete *now in handy pellet form*—gives a strong, elastic bond of asphalt to aggregate that greatly reduces flushing—keeps pavement tough and flexible through all kinds of weather.

Its handy pellet form allows it to be shipped anywhere, stored indefinitely. Extremely quick dispersing, it requires no special equipment. *And it adds little to the initial costs and reduces maintenance costs.*

Joint-SEALZ—a hot-poured *joint sealer* for concrete pavements—forms a tight, lasting bond that won't extrude in the hottest weather, won't crack, or pull away in the coldest.

Aero-SEALZ—a jet-fuel-resistant joint sealer for concrete *airport* surfacing—resists damage from fuel spillage, petroleum distillates, and engine cleaning compounds—gives longer trouble-free *ramp* and *runway* life.

Surfa-Aero-SEALZ—jet-fuel-resistant pavement binder for airport *surfacing*—gives airfield pavements outstanding resistance to fuels, oils, and solvents.

Let science help solve your surfacing and sealing problems. Write for more information on SEALZ® compounds today.

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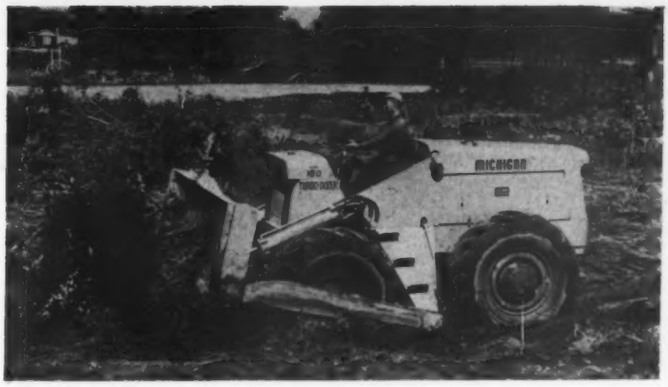
For more facts, use Reader-Reply Card opposite page 18 and circle No. 551

Turbocharged 165-hp rubber-tire dozer has speed and maneuverability



The Michigan Model 180 Turbo-Dozer is the first rubber-tire bulldozer to be powered by a turbocharged diesel engine.

■ The first rubber-tire dozer powered by a turbocharged diesel engine has been introduced by the Construction Machinery Division of Clark Equipment Co., Benton Harbor, Mich. Among operational advantages claimed by the manufacturer are hydraulic controls which facilitate easier maintenance, a bowl which can be tilted by the operator while the machine is in motion, and the ability of the dozer to move under its own power over the highways.

The Michigan Model 180 Turbo-Dozer has a 165-hp rating and a road speed of 27 mph, reportedly the fastest in its field. Equipped with four-wheel drive, the new unit also has rear-wheel steering which permits full power on wheels even while turning. Like other units in the Michigan tractor-shovel line built by Clark, the Turbo-Dozer features a power-shift transmission, a heavy-duty torque converter which automatically provides up to 3 to 1 torque multiplication, and planetary wheel-drive axles.

The dozer blade, raised and lowered by two double-acting cylinders, is tipped back and forth by a 6-inch double-acting hydraulic cylinder to pry out and lift boulders, uproot stumps, or change the digging angle of the blade from cutting to float position. Both ends of the blade are fitted with vertical cutting edges which enable the Turbo-Dozer to slice through heavy roots preparatory to knocking over trees. Side-cutting edges of the dozer bowl are replaceable and end bits are interchangeable to simplify maintenance.

Inclusion of a power-shift transmission as standard equipment eliminates the engine clutch and permits the operator to shift instantly from forward to reverse even while moving. A locking differential in the front axle automatically applies power to the wheel with the firmest footing when one wheel begins to slip. The steering drive axle oscillates to maintain ground contact of all wheels on uneven terrain.

Quick starting, even at extremely low temperatures, is facilitated by a 24-volt electrical system. Four 18:00 × 25, 12-ply high-flotation tires and a wheel tread of 6 feet 11 inches reportedly give the Turbo-Dozer good traction and permit it to travel over highways and roads without damaging pavement. Rear-wheel steering is said to substantially increase tire life. A 50-gallon fuel tank permits the machine to work an average full day without refueling.

A swinging drawbar fastened to the center of the Turbo-Dozer's extra-heavy-duty C frame is positioned to allow fast easy connection to any equipment that has to be pulled, such as a sheepsfoot roller or scraper.

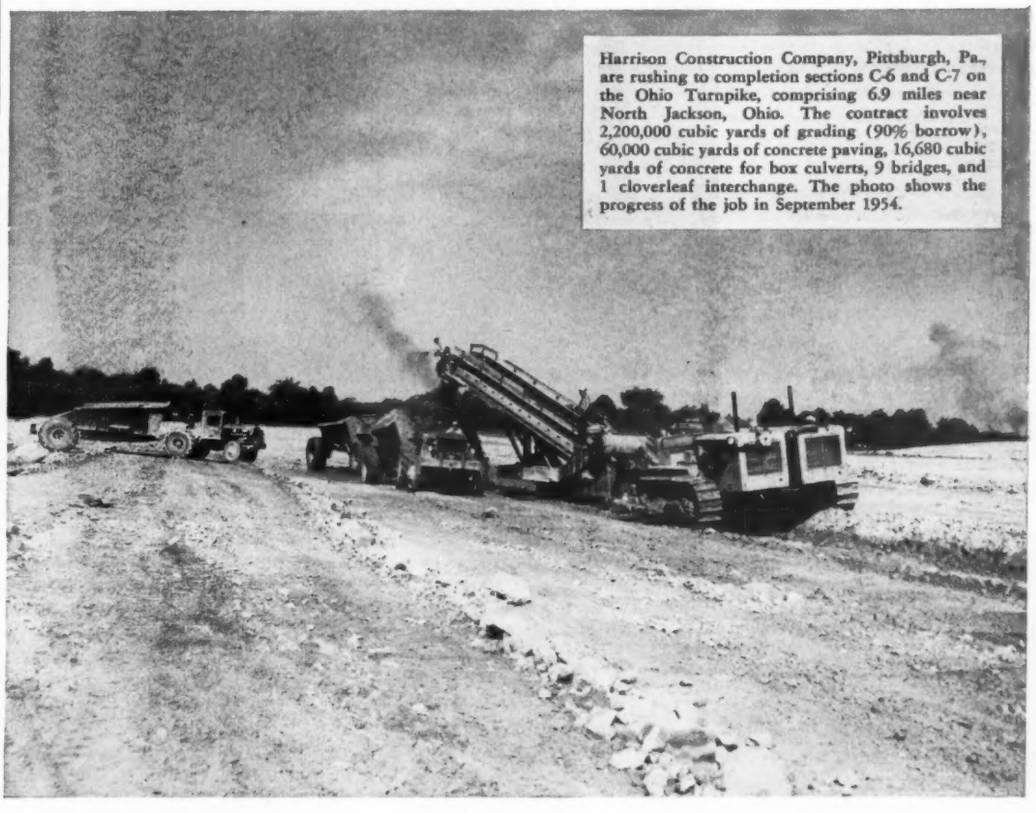
The Turbo-Dozer is 8 feet 4¾ inches high over the air cleaner cap, 9 feet 9 inches wide at the bowl, and 17 feet 1 inch long with the bowl vertical on the ground. Its wheelbase is 7 feet 4 inches and ground clearance is 14½ inches. Weight is 27,000 pounds.

For further information write to the company, or use the Request Card at page 18. Circle No. 685.

GULF PRODUCTS *and* FINE SERVICE

keep equipment rolling

on the Ohio Turnpike Project



Harrison Construction Company, Pittsburgh, Pa., are rushing to completion sections C-6 and C-7 on the Ohio Turnpike, comprising 6.9 miles near North Jackson, Ohio. The contract involves 2,200,000 cubic yards of grading (90% borrow), 60,000 cubic yards of concrete paving, 16,680 cubic yards of concrete for box culverts, 9 bridges, and 1 cloverleaf interchange. The photo shows the progress of the job in September 1954.

THE Ohio Turnpike is another big and important project where a large percentage of the participating contractors rely on Gulf to keep their equipment on the job and operating smoothly.

Contractors like Harrison Construction Company, for example, appreciate the clean-burning, high performance properties of Gulf gasoline and Diesel fuels—also Gulf's prompt delivery service.

Let us discuss with you how Gulf's quality service and fine products can help you on your next job. They are quickly available to you through more than 1400 warehouses located in 31 states from Maine to New Mexico.

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1822 Gulf Building

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GULF REFINING COMPANY
Pittsburgh 30, Pa.

THE FINEST PETROLEUM PRODUCTS FOR ALL YOUR NEEDS

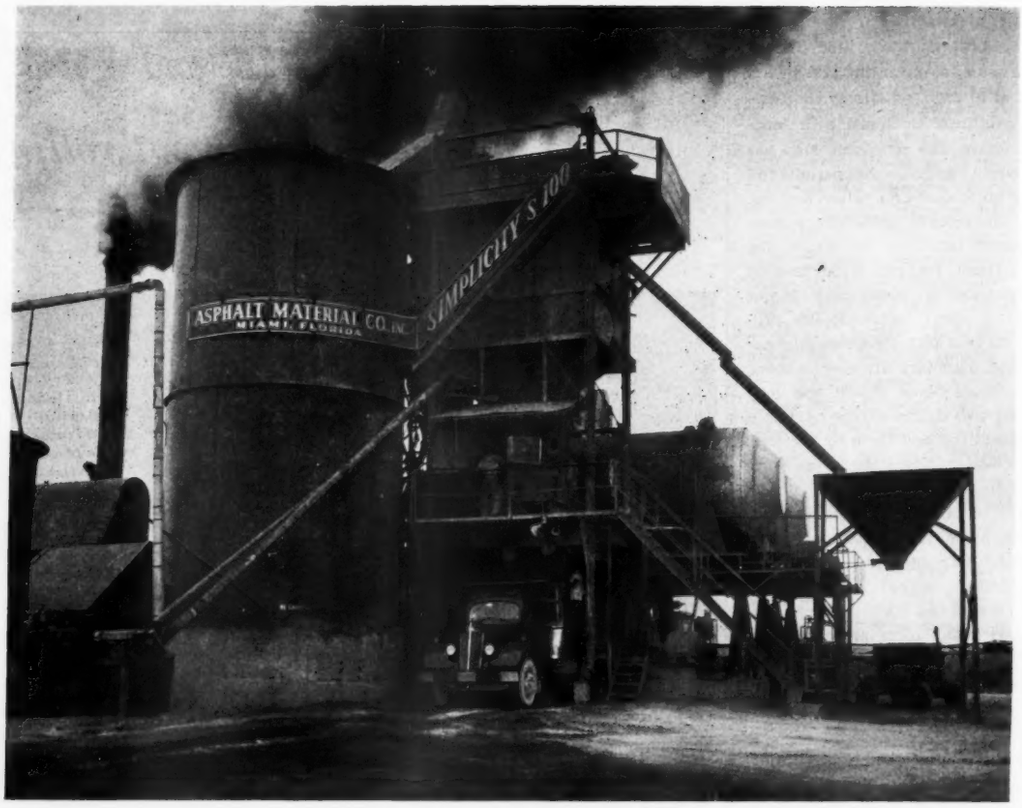
For more facts, use Reader-Reply Card opposite page 18 and circle No. 552

Paver and hot-mix plan

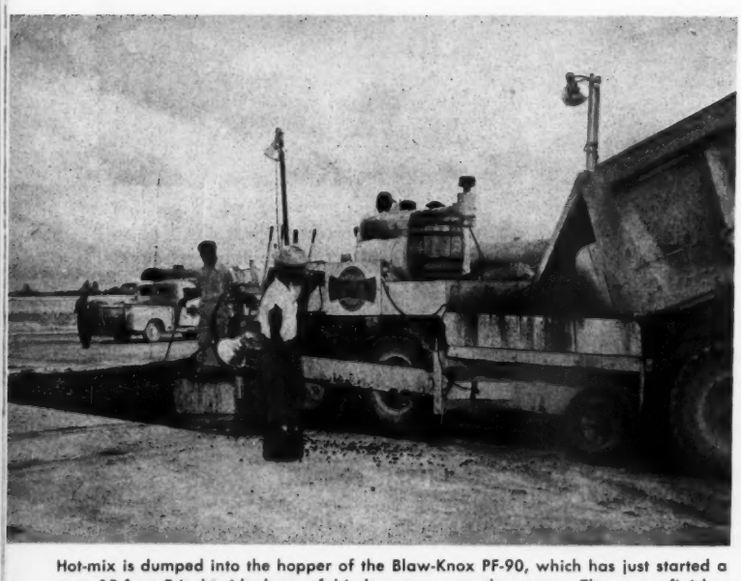
pace work o

Lime rock for the base course is picked up in a borrow pit by a Euclid 18-yard scraper push-loaded by a Caterpillar D8 tractor. About 3 million cubic yards of the material, graded from 3½ inches to dust, was needed to bring the field to grade.

C&E Staff Photos



A 3-ton batch is loaded out from this Simplicity plant to an International truck for the 3-mile average haul to the paving site. The 46,000-gallon vertical tank provides storage space for the asphalt brought in from Miami.



Hot-mix is dumped into the hopper of the Blaw-Knox PF-90, which has just started a new 13-foot 2-inch-wide lane of binder course on the apron. The paver-finisher lays an average of 42 linear feet of material per minute.

As the paver travels ahead, it pulls a contractor-built float which has a level mounted on a crossbar so that variations in the thickness of the binder can be detected easily. Lights on the machine are used by the second shift.

on new air base

Simplicity 3-ton-batch plant supplies more than 365,000 tons of asphaltic and tar-rubber concrete for runway, taxiway, and apron

by **ANTHONY N. MAVROUDIS, field editor**

An earth ramp built at the plant allows trucks to empty aggregates into a CMC 20-yard hopper.

Placing more than 365,000 tons of asphaltic concrete and tar-rubber concrete in about 250 working days called for a high production and fast paving for the huge runway and parking aprons at Homestead Air Force Base, Homestead, Fla., one of the new bases of the Strategic Air Command. But with the onset of the summer rainy season earlier this year, Asphalt Paving Co., Miami, Fla., had virtually finished the job, largely because of the extraordinary production of a Simplicity S-100 hot-mix plant and two new Blaw-Knox PF-90 paver finishers.

Lime rock base course

Paving at the base waited until last February, when W. T. Price Dredging Corp., Miami, and Blythe Bros. Co., Charlotte, N. C., the joint-venture firms construcing the $3,037,950 runway, taxiway, and aprons, completed placing about three million cubic yards of crushed lime rock to bring the airfield up to grade.

Price & Blythe began this phase of the work last September, using a ripper attached to the rear of an Allis-Chalmers HD-20 to plow 6 to 8 inches into borrow pits to get the material. This prevented the lime rock from being crushed too much, permitting it to be hauled directly to the fills, where specifications required it to be graded from 3½ inches to dust. A fleet of Euclid 18-yard scrapers, push-loaded to capacity by the HD-20 and a Caterpillar D8 tractor, made the average 1½-mile haul to the fills.

The base course rests directly on native lime rock subgrade which makes an excellent foundation for the airfield. This strata of lime rock, which exists throughout this section of Florida, had a 2-foot-thick cover of marl which was easily removed by dozers. The base course consists of a minimum of 6 inches of compacted lime rock. Maximum fills were 5 feet deep. After two heavily loaded Hyster grid-type rollers and a Buffalo-Springfield Kompactor four-wheel roller brought the base to 100 per cent density, the course was primed with 0.01 gallon of MC-O cutback asphalt per square yard by an Etnyre pressure distributor.

Runway and apron paving

In cross section, the runway and apron are identical. Each consists of a 6-inch base course, a 2½-inch binder course, and a 1½-inch wearing surface. The underlying strata of lime rock gives more than enough support for the pavements that will carry the B-47 Stratojets.

The runway is 200 feet wide and 11,200 feet long, and has provisions for a future extension up to 15,000 feet. Its wearing surface, having lime rock aggregate ¾-inch and smaller, is asphaltic concrete, except for two 1,000-foot end sections. These have a tar-rubber concrete surface course designed to resist the deteriorating action of jet fuels.

The parking apron—probably the world's largest—parallels the runway, measures 1,150 feet in width and 8,625 feet in length, and includes a 75-foot taxiway. Both the apron and taxiway area are also surfaced with the newly developed tar-rubber concrete.

Before the binder course was placed, about 0.06 gallon of RC-2 per square yard was distributed over the primed base course as a tack. The 2½-inch binder course of 1 inch and smaller aggregate was put down in 13-foot 2-inch widths by the Blaw-Knox PF-90 at an average speed of 42 linear feet per minute. If three weeks elapsed between the placing of the binder and the surface course, a tack coat was put down by the pressure distributor at a rate of 0.08 gallon of RC-2 asphalt per square yard.

As the paver moved along, it dragged a contractor-rigged floating device carrying a level. This permitted any variation in the pavement to be detected immediately. The paver was closely followed by two Galion 3-wheel 10 to 12-ton rollers which made 3 to 5 passes to get the required 98 per cent density. Two 8 to 12-ton tandem-wheel rollers—a Buffalo-Springfield and a Galion—brought up the rear with 4 to 6 passes apiece. The tar-rubber concrete surface was put down in a manner similar to asphalt surfacing procedures.

Paver handles plant output

Until June of this year, the paving contractor worked a 10-hour day, getting average daily runs of 1,900 tons. As the rainy season approached, a twenty-hour two-shift day was adopted. Under this schedule, the highest daily run was 3,400 tons. The Blaw-Knox PF-90, which has a rated laying speed of 48 feet per minute, put down everything produced by the Simplicity hot-mix plant, and still had time to spare. No one on the job, including the paving superintendent, expected such excellent results from the rubber-tire machine. Once, working from a backlog of the plant's material, the paver laid as much as 270 tons per hour. Paving was done continuously, one machine serving as a standby so that maintenance and repairs could be carried out without interrupting paving operations.

The fast working rate of the paver kept the Simplicity S-100 hot-mix plant working at maximum capacity of 200 tons per hour. The plant was in an isolated area about three miles from the job site, and 85 to 100-penetration asphalt was trucked in from Miami by Etnyre 5,000-gallon tankers and stored in a 46,000-gallon vertical tank. Pumps on the tankers filled the storage tank. A circular hot well containing pipes through which hot oil

Just behind the paver, a Galion 10 to 12-ton 3-wheel roller and a Buffalo-Springfield 8 to 12-ton tandem-wheel roller bring the binder course to the required 98 per cent compacted density.

flowed, kept the asphalt at the 300-degree-F delivered temperature. A horizontal boiler using atomized oil for fuel, provided heat for both the storage tank and the jacketed lines. Commercial electricity was purchased to power the plant and belt feeds, and lights used for night work.

Crushed lime rock aggregate for the hot-mix was purchased from a commercial firm a quarter of a mile away, then trucked to the plant.

Two earth ramps were built to allow trucks to back up and unload into two CMC 20-yard hoppers—one for sand and screenings and one for coarse aggregate which fed continuous belts bringing aggregate to the ¾ inch, 1 inch, sand and screenings stockpiles. Another belt, located under the stockpiles, fed into the first of three dryers of the plant. This was a single-drum unit 8 feet in diameter and approximately 25 feet long. From here, aggregate passed through two double-drum dryers, each 10 feet in diameter and 20 feet long. A pyrometer measured the temperature of the aggregate which was kept at 300 degrees for asphaltic concrete and 220 degrees for the tar-rubber concrete. An enclosed hot-bucket elevator, 40 feet high, raised the dried aggregate to Symons double-deck vibrating screens and into the storage bin. A total of four screens, or two per deck, segregated the aggregate into four sizes—1-inch, ¾-inch, ⅜-inch, and sand, and stored each size in separate compartments.

Two Detecto dial scales measured the exact quantities of aggregate and asphalt which were mixed simultaneously for 45 seconds in the pugmill. A 3-ton batch had the following gradation for the two different courses:

Sieve size	Per cent passing Binder course	Surface course
1 inch	100	....
¾ inch	94	100
½ inch	79	92
⅜ inch	....	85
No. 4	48	68
No. 10	34	49
No. 20	....	37
No. 40	20	28
No. 80	12	13
No. 200	5	4.5
per cent asphalt	5.5	....
per cent tar-rubber	....	8.7

A 50 per cent of wear for aggregates in base, binder, or surface courses was the maximum permissible. The lime rock used exclusively as the aggregate had a 30 per cent of wear, according to the Los Angeles rattler test, indicating that it is a good hard material suitable for any kind of course. Because of its toughness, the paddles in the plant's pugmill had to be replaced about once a week during the course of the job.

Use of tar-rubber concrete

Approximately 107,000 tons of tar-rubber concrete—the largest amount used anywhere to date—was included in the total amount of paving material required for the base. This material, which will offset the effect of jet fuels on the air-base pavements, was prepared similarly to asphaltic concrete, except that a tar and rubber blend was substituted for asphalt. Approximately 3 per cent of synthetic rubber is used in the blend, and 8.7 per cent is the amount of tar-rubber in the wearing-surface design mix. The blend used on the base is known commercially as Surfa-Aero-Sealz and was furnished by Naugatuck Chemical Co., Naugatuck, Conn., a division of the U. S. Rubber Co.

This is one of several substances which were developed after the U. S. Army Corps of Engineers undertook extensive studies to find a material which would resist jet-fuel spillage. Until the advent of the jet age in aircraft, high quality asphaltic-concrete pavements could be used for runways for all types of aircraft, since it did not deteriorate under the normal spillage of high-octane gasoline. But unlike high-octane gas, jet fuel evaporates slowly and remains on the paving long enough to dissolve some of the asphalt.

Experiments showed a blend of at least 3 per cent oil-resistant rubber and tar to be satisfactory binding materials for tar-rubber concrete and resistant to jet-fuel deterioration. Tar alone—though more resistant to ordinary petroleum fuels than asphalt, became brittle at low temperatures and fluid in hot weather. The addition of oil-resistant rubber increased the low-temperature flexibility and high-temperature stability of the tar-rubber pavement. Test sections of the tar-rubber concrete put down at U. S. Army Corps of Engineers experimental installations, have been subjected to accelerated fuel spillage, jet blasts, and traffic tests for about three years, and have proved satisfactory.

Job hazard

A serious hazard to health arose while the tar-rubber pavement was being laid. Men, in close proximity to the freshly prepared wearing surface, began breaking out in a rash on their faces and arms. Though the reason for this is still undetermined, tests are being made to find out whether toxic gases were being released and kept close to the surface of the pavement by the heat in this part of Florida. The other known tar-rubber surfaces in this country have been put down

Dozing hard sandstone in stripping and building access roads keeps two HD-21's busy at the Peerless Mine of Coal River Mining Company, Hookersville, W. Va. The HD-21's are working 16 hours a day, 7 days a week, moving up to 1,500 yd of material like this in each 8-hour shift.

new HD-21's AT WORK across the country

Allis-Chalmers HD-21's are meeting today's stepped-up demands on hundreds of jobs

Excavating and leveling land for an outdoor theater near Milwaukee was the first assignment for this HD-21. Kramp Construction Company was the first Wisconsin owner of one of these productive new tractors.

Push-loading scrapers is another of many uses for the HD-21. The torque converter drive automatically selects the speed and power necessary to help scrapers pick up a full load. Contractors Machinery Company, subsidiary of Grannis and Sloan, Fayetteville, N. C., is using this HD-21 for extending aircraft runways at Pope Field, Ft. Bragg, N. C.

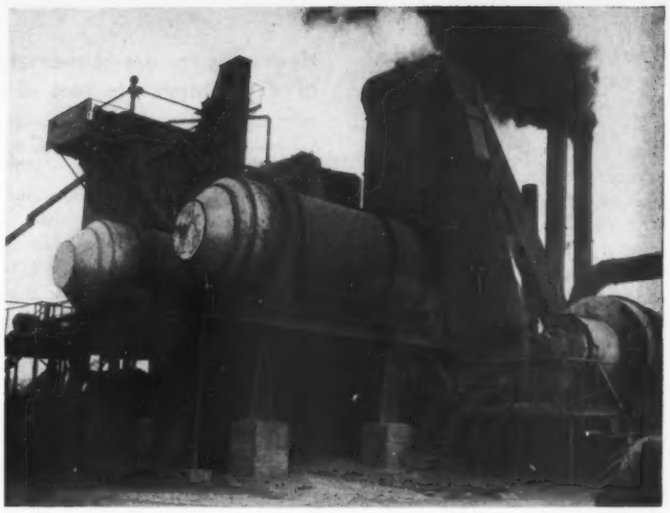
in cooler regions where no such problems arose.

Because of the suspected cause of the hazard, operators of the Blaw-Knox pavers and of the rollers were required to wear respirators, the safety engineer of the district engineer's office recommended a salve to be spread over the faces and arms of workmen, and paver operators were allowed to stay on their machines a maximum of 2 hours at a time. These preventive measures were sufficient to control rashes and burns.

Personnel

The $21 million SAC base, scheduled for partial occupancy late this fall, is under the supervision of the Jacksonville District of the U. S. Army Corps of Engineers. The district engineer is Col. E. E. Kikpatrick, and Lt. Col. John C. Hassell is the resident engineer at Homestead. Joseph Maier is the project manager for the Price & Blythe joint venture. W. F. Gilmore was the superintendent for the paving subcontractor, the Asphalt Paving Co. Robert Sumrall is asphalt plant superintendent for Asphalt Paving Co., of which F. C. Leffingwell is president. The paving engineer for the Corps was B. E. Schumacher.

THE END

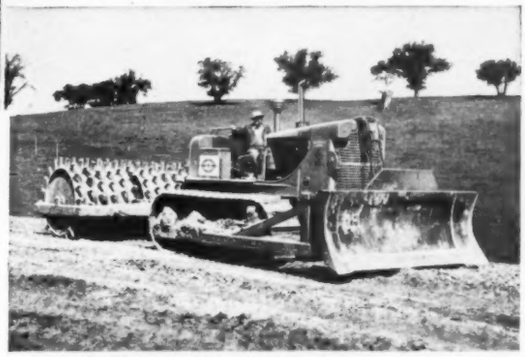


Three dryers—two of them pedestal-mounted double-drum units 10 feet in diameter and 20 feet long—are used by the Simplicity S-100 plant. The third, at right, is 8 feet in diameter and 25 feet long.

Clearing, dozing and cleaning up around a 3-yd shovel . . . that's how Badget Mine Stripping Company uses its two HD-21 Allis-Chalmers Tractors. The units are working on the northeast extension to the Pennsylvania Turnpike in the Pocono Section near Wilkes-Barre, Pa.

New Allis-Chalmers tractors with advanced basic design features, job-proved during millions of operating hours, are going to work in your neighborhood. Ask your Allis-Chalmers dealer where you can see them in action.

Big dirt mover on the new Kenwood Plaza Shopping Center, Kenwood, Ohio (Cincinnati suburb), is this 44,000-lb HD-21. The contractor, John R. Jurgensen Company, will move an estimated 250,000 yd before the job is finished.



Pulling, pushing and dozing, two HD-21's owned by Ransome Company, Emeryville, Calif., are busy on the 4.4-mile, all-new Ygnacio Valley Road extension job in Contra Costa County, Calif.

Big jobs need big equipment and some of the biggest producers on the Indiana Turnpike are the many HD-21 tractors at work there. Here one of the 204-hp giants pulls a loader on a stretch for which Rieth-Riley Construction Co., Inc. is the prime contractor and Chapin & Chapin, Inc. the sub-contractor.

ALLIS-CHALMERS

CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WISCONSIN

For more facts, use Reader-Reply Card opposite page 18 and circle No. 553

Surveyors' range pole

■ A lightweight range pole introduced by W. & L. E. Gurley, Troy, N. Y., is formed of lightweight metal tubing and has a steel point at one end. This design is said to provide superior balance for plumbing.

Eight feet long, the pole is made in two sections and joined by a slip-joint through which wear can be taken up by simply spreading a split-plug connector. The pole's top section has a plug which can be removed so that an extra 4-foot section may be added.

For further information write to the company, or use the Request Card at page 18. Circle No. 602.

Brush disposal chipper

■ A self-powered chipper that facilitates brush disposal is illustrated in a booklet from Asplundh Chipper Co., 505 York Road, Jenkintown, Pa. The chipper is available in 9, 12, and 16-inch models.

All Asplundh chippers are equipped with a flame-cut steel flywheel 18 inches in diameter × 4½ inches thick, which weighs approximately 400 pounds. This provides uniformity of power during the chipping action and results in less strain on the engine.

Skid, tractor, and truck-mounted models are illustrated in the booklet.

To obtain Booklet 655 write to the company, or use the Request Card that is bound in at page 18. Circle No. 662.

New Hough representative to work in New England

The district representative for Frank G. Hough Co., Libertyville, Ill., in the New England states is Robert J. Sudlow. He will assist Hough dealers handling sales and service of the Payloader line of tractor-shovels and tractors.

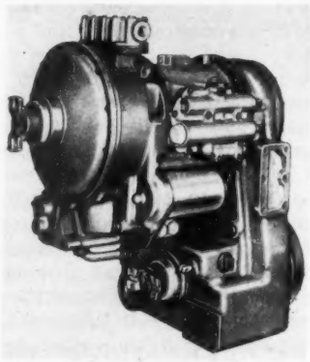
Mr. Sudlow will work with Clyde Everett Equipment Co., Burlington, Mass., and East Providence, R. I.; Graves Equipment Co., Northampton, Mass., and Burlington, Vt.; R. C. Hazelton Co., Manchester, N. H.; and Wilhelm-Davies, Inc., Wallingford, Conn.

■ A new Allison transmission designed for vehicles requiring forward and reverse operations in all speeds has the advantages of both the Torqmatic converter and the quick-shift Torqmatic transmission. The new Model CRT-3330 Torqmatic drive is for use with gasoline and diesel engines in the 70 to 130-hp class. With three speeds forward and three reverse, it has a wide range of application in loaders, graders, fork-lift trucks, and other construction machinery.

The Model CRT-3330 consists of the Allison single-stage torque converter, the Allison quick-shift range gearing, and transfer gearing drop box with front and rear outputs. It also includes a built-in drive for a pump. A quick cutoff valve is provided for disengaging the transmission to make full engine power available for pump operation.

Hydraulic torque-converter-type transmission gives the operator feel of the load

An important feature of the new Torqmatic transmission is that it transmits, through the operator's control, the feel of the load pickup. Allison emphasizes that this is the first time that a hydraulic torque-converter-type transmission has permitted the operator to feel the load in much the same way as does the engagement of a conventional mechanical clutch.



The new Allison Model CRT-3330 Torqmatic drive combines the advantages of the Torqmatic torque converter and the quick-shift Torqmatic transmission.

Optional features and accessories available for the transmission include two converter capacities, two implement-pump drive ratios, filter, two transfer-gear ratios, converter dry housing, disconnect for one output shaft, parking brake, governor drive, oil cooler, and engine or remote mounting.

For further information write to Allison Division, General Motors Corp., Indianapolis 6, Ind., or use the Request Card at page 18. Circle No. 608.

Collapsible rubber tank stores fuel on job site

■ Huge collapsible storage tanks that can be used on remote construction projects for gasoline or fuel-oil storage are now being produced by the Goodyear Tire & Rubber Co., Aviation Products Division, Akron 16, Ohio.

The pillow-like tanks, originally developed for military use, are constructed of two layers of fabric-reinforced synthetic rubber, vulcanized into a single unit. The inner layer of fabric consists of a gasoline barrier imbedded between two layers of gasoline-resistant synthetic rubber.

The portable tanks are being manufactured in 900, 3,000, and 10,000-gallon sizes, with larger and intermediate sizes available on special order.

An illustrated brochure which gives complete information on the construction, applications, and advantages of the tanks is available on request.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 759.

Catalog on motor grader

■ A new catalog describes the construction and operating features of the Galion Model 503 motor grader.

Also covered in the booklet are attachments for the grader, including hydraulic shiftable moldboard, front-end scarifier, leaning front wheels, hydraulic circle turn, rear-end bucket loader, windrow eliminator, V and straight snowplows, and bulldozer.

To obtain Catalog No. 380 write to Galion Iron Works & Mfg. Co., Galion, Ohio, or use the Request Card that is bound in at page 18. Circle No. 760.

Most Modern Design!
Most Modern Power!

Get both in new Chevrolet Task-Force trucks. Modern styling that actually works for you! Modern power in the shortest stroke V8's* in any leading truck!

Styling that's designed to make money for you—It's a fact. The ultra-modern, Powermatic design of a new Chevrolet Task-Force truck calls attention to your business, favorably impresses customers and prospective customers! That's why on looks alone a Task-Force truck can make money for you. And it's *functional* styling. Panoramic windshield, new High-Level ventilation, concealed Safety Steps—these are styling features that double in brass to make the driver's job less of a chore. With safety and comfort increased, efficiency goes up. Tight schedules are easier to maintain and you keep the profits coming in on time.

V8 power—unmatched for efficiency!—Chevrolet brings you the industry's most advanced short-stroke V8 engines! The compact, super-efficient design of these great V8's reduces friction and wear . . . delivers a higher output per pound of engine weight. You save on upkeep and operating costs! And with a modern 12-volt electrical system, you get double the voltage for quicker starting plus a greater reserve of electrical power. *With two power-packed V8's and five gas-saving 6's—it's the greatest engine choice in Chevrolet truck history!* See your Chevrolet dealer for details. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

**V8 standard in the new L.C.F. models, an extra-cost option in all others except Forward-Control models.*

NEW CHEVROLET Task-Force TRUCKS

CHEVROLET

For more facts, use Reader-Reply Card opposite page 18 and circle No. 554

DRILLING CONTRACTORS

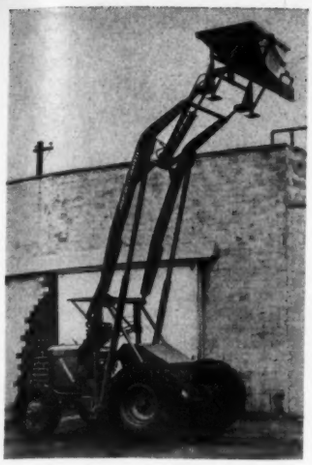
Diamond and Shot Core Borings, Dry Sample Borings, Grout Holes and Pressure Grouting, Foundation Testing for Bridges, Dams and all Heavy Structures

Leading manufacturers, also, of High-Speed Diamond Drilling Machines and Complete Accessory Equipment, including all types of Diamond Drilling Bits.

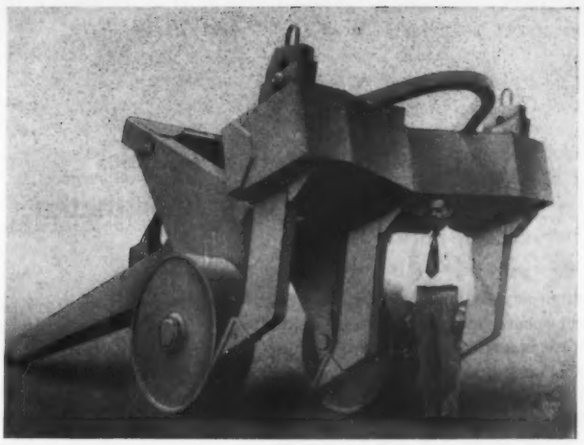
Write for Catalog No. 320

SPRAGUE & HENWOOD, INC.
Dept. C, Scranton 2, Pa.

For more facts, circle No. 555



The Model 600 Economobile tractor-loader with concrete hopper attachment.



THIS NEW giant Model RXH-3 ripper weighing 25,000 pounds has been designed to work with the new high-powered crawler tractors placed in production in recent months. Ripping depth can be controlled at 36, 42, and 48 inches, and a special long center standard is available to give a penetration of 60 inches. The heavy standards of the cable-controlled ripper are made of special alloy heat-treated steel and have removable hard-faced points. For further information write to Southwest Welding & Mfg. Co., 3201 W. Mission Road, Alhambra, Calif., or use the Request Card at page 18. Circle No. 607

Hydraulic tractor loader has 18-foot lift height but low clearance

■ The Econmobile, American Road Equipment Co.'s heavy-duty high-lift hydraulic tractor-loader is available in a new model that has an extra long reach. Measured from the tractor wheel to the heel of the fork, the unit's reach is 6 feet. The machine retains its hoisting height of 18 feet, or 22 feet with auxiliary tower, and a payload capacity of 1,500 pounds rated on a continuous basis. The completely boxed all-welded chassis and loader are now entirely integrated into a unit.

Despite the exceptional lifting height, the machine can go under an 8-foot clearance, so that it may be used inside and outside a building.

A new 35-hp Continental Red Seal industrial engine powers the Econmobile. Larger tires with a wider tread give the unit greater traction and flotation than before. The machine has a turning radius of 16 feet 2 inches. It travels at four forward speeds up to 30 mph and has one reverse speed. Power steering and hydraulic brakes are features.

Attachments for the Econmobile include a pallet fork, 4-foot auxiliary tower, ½-cubic-yard concrete hopper with hydraulically controlled gate, 56-inch aggregate and general-purpose bucket with 15 cubic-foot capacity, 78-inch dozer blade, work platform, and a chain boom.

For further information write to American Road Equipment Co., 4302 N. 28th Street, Omaha, Nebr., or use the Request Card at page 18. Circle No. 657.

EAGLE BREAKER BALLS

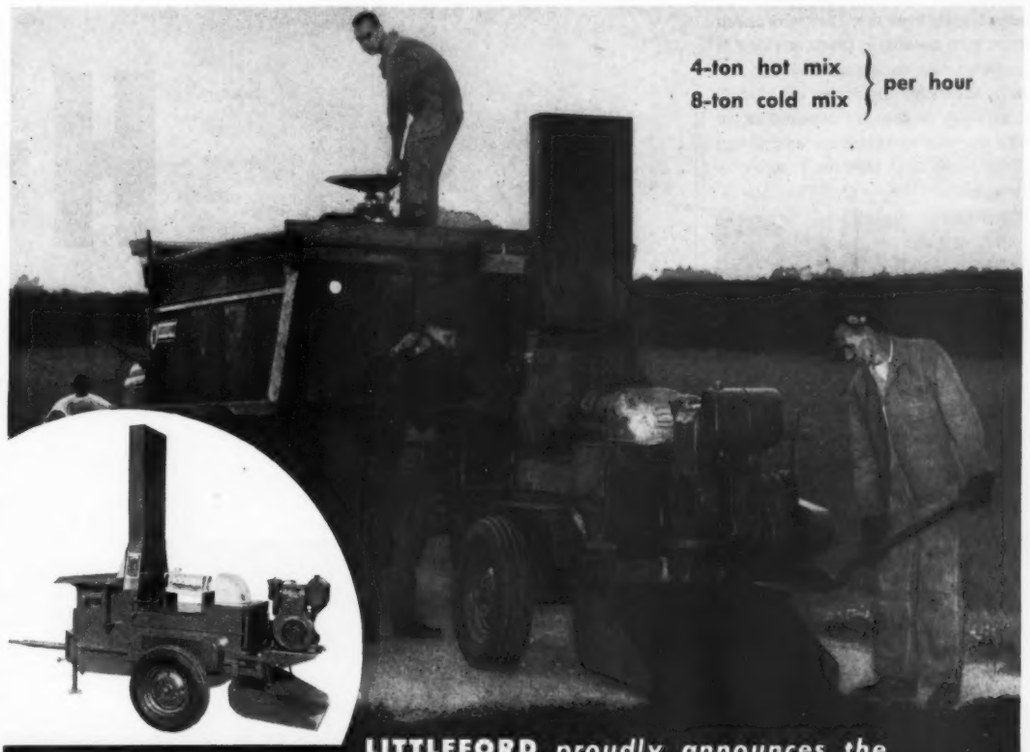
Available of abrasion, impact resistant Ni-Hard nickel-chromium-iron alloy for high breaking efficiency and tough semi-steel for regular jobs. Pear shaped, with easily replaced hook, in 5 sizes; 1500 lbs. to 8000 lbs. Spherical in 4 sizes; 1275 to 6350 lbs. Ask for Bulletin 952 on breaker balls, line weights, pile hammers.

Largest Manufacturers of Concrete Aggregate Washing-Classifying Equipment—Send for Catalog 55.

EAGLE IRON WORKS

159 Holcomb Ave., Des Moines, Iowa

For more facts, circle No. 556



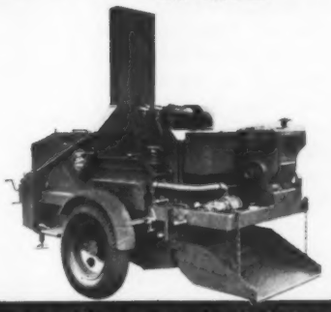
LITTLEFORD *proudly announces the*

NEW 400 TRAIL-O-PATCHER

THE FIRST LOW-COST, COMPACT, ALL-WEATHER BITUMINOUS MIXER

Now — a 4-cubic foot capacity all-weather bituminous mixer at surprisingly low cost — the Littleford 400 Trail-O-Patcher. Littleford quality built throughout with twin pugmills, two Littleford torch type burners that produce 2200° F temperature, 7-hp aircooled Wisconsin engine, high speed single action trailer, hinged stack, and many other Littleford engineered features.

For complete information on the efficient, economical 400—write today for descriptive free bulletin No. FF-29.



700...another great Trail-O-Patcher

The first self-contained all-day all-weather bituminous mixer. Has 200-gal. bitumen tank, metering system and aggregate drying compartment. Capacity 7 TPH hot mix, 12 TPH cold.

LITTLEFORD

LITTLEFORD BROS., INC.

485 East Pearl Street, Cincinnati 2, Ohio

For more facts, use Reader-Reply Card opposite page 18 and circle No. 557

Fiber-board forms offer economies in concrete floor and beam construction

■ Forms made from tough, corrugated fiber boards are proving practical and economical in concrete-floor construction, according to Hoerner Boxes, Inc., 1900 Windsor Place, Fort Worth, Texas.

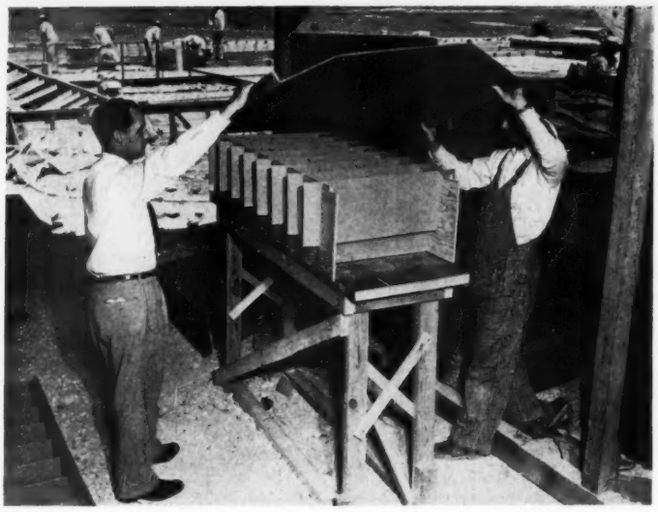
Used in place of metal pans, the patented Hoerner Carton Forms are reported to be strong enough to support the compression of the poured concrete with an ample margin of safety. And while they are easily removed after pouring, they are cheap enough to be left in place, making it possible to lay conduit and lath at the same time that the forms are placed.

Shipped to the job knocked down flat, the Carton Forms are scored and trimmed so that they may be easily assembled by unskilled labor. This means a saving, too, in transportation, as well as a convenience in storage on the site.

Used in the construction of concrete floors and beams, Hoerner Carton Forms may be left in place and plastered in. This makes it possible to lay conduit and lath at the same time that the forms are placed.

To be assembled, the cross-members of the Carton Forms are placed approximately 7 inches apart for the full length of the form. They are secured to the outer section of the form by a simple hand stapling method. The forms are then set in place on centering boards and stapled down by their flanges. A number of forms placed end to end form the length of the concrete beam desired. When the reinforcing bars and the wire netting have been placed on top, the pouring and tamping operations may begin.

The forms are water-repellent and will not draw water from the concrete. As for strength, the manufacturer reports that the Carton Forms have withstood a top-to-bottom compression of approximately 1,000 pounds per square foot. If concrete is taken to weigh an average of 140 pounds per square foot, the forms should prove more than adequate in strength, since most floors poured on

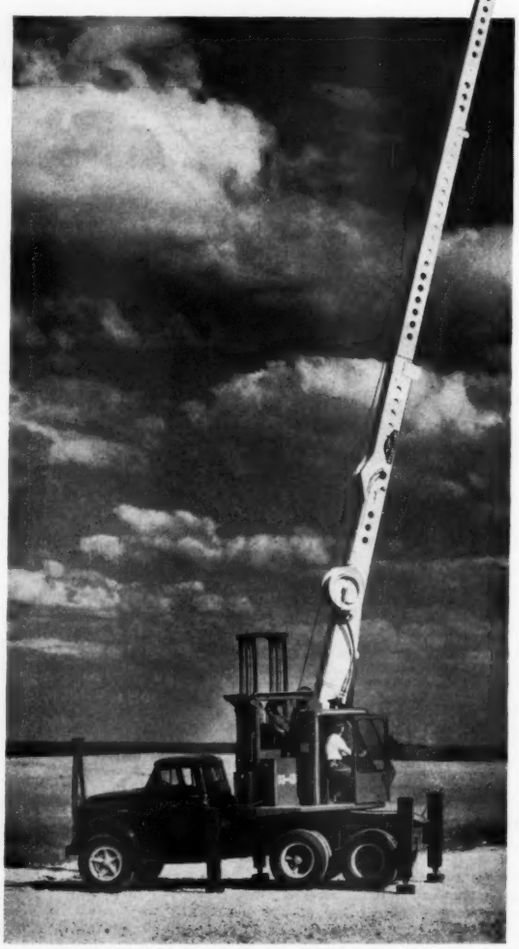


Hoerner Carton Forms are delivered to the job site knocked down flat. Scored and trimmed, they are easily assembled and stapled.

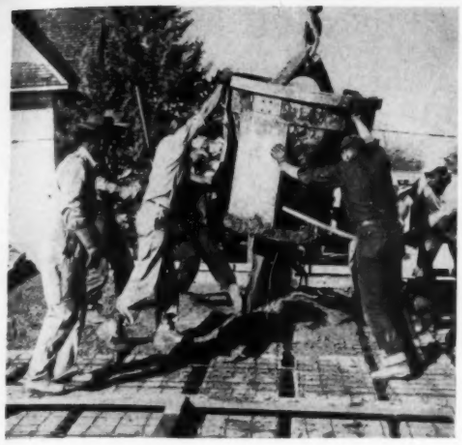
New H-5

1/2-Yd., 9-Ton Hydrocrane

★ ½-YD., 9-TON CAPACITY
★ 50-MPH TRAVEL SPEED
★ UP TO 240-FPM LINE SPEED
★ 24 TO 36-FT. STANDARD TELESCOPING BOOM
★ 38 TO 50-FT. HIGH-LIFT TELESCOPING BOOM
★ UNMATCHED PRECISION CONTROL OF LOADS
★ AVAILABLE WITH CLAMSHELL, CRANE HOOK, MAGNET, CAB
★ OPTIONAL REMOTE TRUCK CONTROL FROM CRANE CAB



The completely new, ½-yd., 9-ton H-5 Hydrocrane brings you the work ability of heavy, carrier-mounted cranes at small-crane cost. Because of its hydraulic outriggers this crane-excavator can be mounted on a commercial motor truck, new or used, without sacrificing any of its basic working ability. These outriggers give the Hydrocrane greater stability and lifting capacity than much heavier machines.



Here the fiber-board forms are being used to pour a floor several inches above the ground and resting on piers. Workmen can walk on the forms because of their high compression strength.

top of them will be from 4 to 6 inches thick.

An incidental but important advantage of forms made of corrugated carton material is that they can be made in practically any size. On the other hand, the steel pans used customarily are manufactured in stock sizes and the design of buildings must be limited to conform to the pans available.

In addition to concrete-beam construction, Carton Forms are expected to find use in other types of building. In the Southwest they have been used successfully in a type of construction known in the area as "concrete slab on fill". As a result of shifting soil, a concrete floor poured on the ground there will ultimately buckle and crack. To meet this problem, floors are being poured in such a way that they are 4 to 6 inches above the ground and rest on piers. Carton Forms are used for this purpose and they are left in place.

For further information write to the company, or use the Request Card at page 18. Circle No. 637.

New alloy fluxes provide versatile welding method

■ A new line of agglomerated fluxes for automatic submerged-arc welding of low-alloy steels has been introduced by Lincoln Electric Co., 22801 St. Clair Ave., Cleveland 17, Ohio. These special fluxes contain alloying elements which may be varied as required for a particular job. Because the agglomeration process by which the fluxes are made permits precise control of flux analysis, Lincoln Electric is able to meet the requirements of the most specialized applications by blending the basic alloy fluxes which it stocks.

The fluxes now available can be compounded to produce weld metal containing chromium, molybdenum, vanadium, and nickel in varying amounts. They can be used for welding steels classified as low alloy, that is, steels containing less than 6 per cent alloy.

The fluxes are also used on the newer high-strength alloy steels and armor steels. In such applications they produce an alloy deposit that will respond to heat treatment to acquire a hardness or tensile strength like that of the heat-treated plate.

A further application is the addition of alloys to the weld through the flux when an alloy electrode is being used, but when additional alloy is needed to control dilution.

For further information write to the company, or use the Request Card at page 18. Circle No. 604.

Simple dust collector

■ A wet dust collector that separates dust from the air by centrifugal action while it also wets and traps dust by water is illustrated in a booklet from Dust Suppression & Engineering Co., P. O. Box 67, Lake Orion, Mich. The Type W Air Tumbler consists of a stationary screw within a horizontal pear-shaped barrel.

Dust-laden air enters at one end of the barrel under the suction of an exhaust fan connected to the outlet at the opposite end. During its flow within the barrel, the dust is continuously centrifuged through four revolutions along a helical path formed by the screw.

Water in the lower portion of the barrel is swept up by the air stream in a sheet that flows around the periphery of the barrel.

Four installation photographs show the Air Tumbler in use on asphalt plants collecting sand, dust, and smoke from rotary driers. In such applications the Air Tumbler solves the problem of air pollution from dust and smoke.

To obtain Bulletin No. 531 write to the company, or use the Request Card at page 18. Circle No. 645.

Bucyrus-Erie Company
South Milwaukee, Wisconsin

Gentlemen:
Send me your new H-5 Bulletin. This crane interests me for ..... work.
(type of job)

★ *Name* .....
★ *Company* .....
★ *Title* .....
★ *Address* .....
★ *City* .....
★ *State* .....

110H55C

BUCYRUS ERIE HYDROCRANE

Mounts on Conventional Truck

50-Ft. Boom Telescopes to Half Length For Travel . . . . .

High-lift, 3-piece boom (extra equipment at added cost) gives you 50 feet of reach, retracts to 25 feet for traveling. When machine arrives at job site, boom and hydraulic fittings can be connected and machine working in less than 10 minutes.

Both the 2-piece standard boom and 3-piece erector's boom extend and retract 12 feet — hydraulically. You can change boom length *while you're working* — move a load in and out of buildings or close quarters without moving crane an inch.

All-Hydraulic Action Means Precision Control . . . .

Every crane function is fully hydraulic — boom and line hoist, swing, outrigger set and retract, boom telescope, bucket open and close. Control is so precise loads can be inched into place when necessary, yet line speed is up to 240 fpm.

The H-5 Hydrocrane's combination of 18,000 lb. maximum lift, 50-ft. boom plus 20-ft. jib, and 50-mph top travel speed opens greatly expanded job opportunities — particularly when all these features are packed into a unit that can meet highway laws for over-all length and axle loads (depending upon truck selection.)

1880-1955

BUCYRUS-ERIE COMPANY
South Milwaukee, Wisconsin

75 Years of Service
to Men Who Shape the Earth

See It In Action
Find out what the new H-5 Hydrocrane can do for you. Ask your Bucyrus-Erie distributor about a demonstration.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 558

Earthmovers work at capacity to reconstruct mountain road

The Cedarapids Master Tandem rock plant, which turned out the 81,000 tons of material for the project, uses a primary jaw unit for crushing large-size rock, relieving the portable plant of some of the harder crushing work.

Excavation of 190,000 yards of material in tough formation permits hot-mix surfacing to get under way ahead of schedule

A good part of beating a road-reconstruction schedule this summer can be traced by Schmidt Construction Co., Grand Junction and Denver, Colo., to equipment maintenance during winter months and to good scheduling of equipment when work got under way this spring.

As soon as work started on March 29, the winter preparations started to pay off. The well-kept equipment was able to work at top efficiency in reconstructing 6.9 miles of east-west highway U. S. 6 in a section which goes through difficult soil about a mile above sea level in the Rocky Mountains.

The company's contract with the Colorado Department of Highways included grading, drainage, construction of several small reinforced-concrete box culverts, installation of hundreds of feet or Armco corrugated metal pipe in diameters up to 48 inches, subbase work, crushing, and plant-mix surfacing for the modern two-lane highway. Major quantities on this job included 190,000 cubic yards of unclassified roadway excavation, 53,000 tons of pit-run Class 3 granular base-course material, 61,000 tons of 2½-inch-minus crushed Class 1 select base-course material, and 27,800 tons of ¾-inch-maximum crushed rock for the plant-mix.

But even before this job started, Schmidt's equipment was working elsewhere. At the year's start, the firm had another contract with the state for 4 miles of divided truck bypass highway east from Grand Junction, and in February, the company's Cedarapids crushing and screening equipment was turning out material for this job. This assignment was finished before May 1—after work had already begun on the U. S. 6 reconstruction—and the plant was moved to the newer job and started work there even as dirt-moving equipment continued to shape up the subgrade.

Preliminary work

A fast dirt-moving pace was set from the start, in spite of the need for keeping traffic moving through the job, the heavily ridged terrain, and the difficult digging in materials —ranging from dirt to heavy conglomerate—which were studded with good sized boulders. Though no drilling and blasting was necessary, extensive ripping was necessary before some of the conglomerate could be removed by the contractor.

Before the main earthmoving spread began to roll at full speed, incidental work, like breaking up and moving some of the old concrete bridges and culverts in the section, had to be done. This job was handled by a 3,000-pound skullcracker hanging from the end of a Bucyrus-Erie truck-mounted 10-B machine. This rig was also equipped with a crane-dragline boom, as well as a backdigger boom and bucket which were used for ditching ahead of the pipe crew and for minor loading jobs.

New culvert

Construction of the concrete culverts, a routine operation, was sub-

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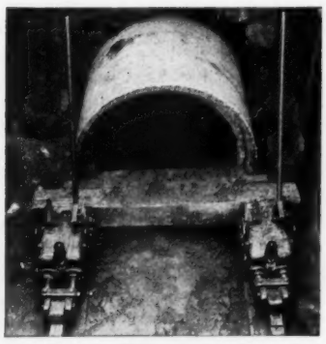

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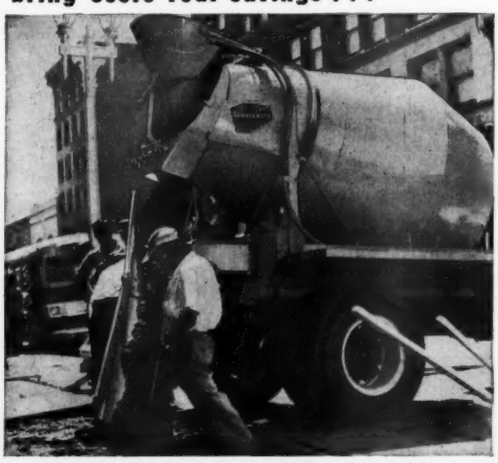

CMC's NEW TRANSCRETE TRUCK MIXERS and their ability to put still more payload on the road and more concrete in the forms is the big topic of conversation among Ready Mix Operators. They are really enthused over Transcrete's improved charging hopper control and new easier-to-handle chutes with optional hydraulic chute lift.

They're all talking about **THE UNIQUE TRANSCRETE FLOATING DRIVE** with simple chain take-up adjustment which eliminates the troubles experienced with the ordinary rigid drive. Operators have long been sold on Transcrete's larger drum diameter, deep "L" section blades and a progressively increasing blade slope that assures more thorough mixing, more positive discharge, and a greater ability to handle stiff, low slump mixes.

The new rugged, lightweight Transcrete is available in 3½ to 6 yard capacities. **WRITE FOR BULLETIN TM 1055.**

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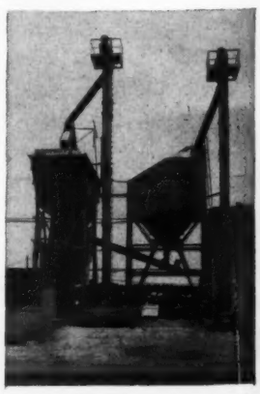

The clincher to the combination for bigger profit was made with CMC's introduction of their new Simplex, Duplex and Multiplex Bins. Users enthusiastically report these bins fill a long apparent need in the industry for a variety of more compact, lower bins for central plants and many other installations. Simplex is available in 47 and 97 ton capacities and Duplex in 100 ton capacity. Both offer a choice of 2, 3 or 4 compartments with or without cement storage. Multiplex is available in 110 and 165 ton capacities with 4 compartments for aggregate — with or without center cement storage.

CMC also has Bin Batchers for smaller jobs and a complete line of other outstanding batching equipment. Write for latest literature.

CONSTRUCTION MACHINERY COMPANIES, Waterloo, Iowa

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Two Caterpillar DW20's move down the highway fill, spreading material in 6-inch lifts. The rig made four trips per hour on 2½-mile one-way hauls, and doubled this number on the short-haul work more common to the job.

A Bucyrus-Erie 38-B shovel with a Bucyrus-Erie 1½-yard dipper loads a Koehring Dumptor in the rock pit. Two of these Koehring rigs were used to haul the raw material to the rock-plant trap.

contracted. Where concrete did not show, ordinary shiplap form lumber was used to build up the panels. Plywood facing was used wherever headwalls were exposed. Form panels were prefabbed at the site, set in place, tied by Burke form hardware, and filled with concrete turned out by a Rex 16-S mixer.

Earth backfill behind these structures and around corrugated metal pipe was started by Gunderson-Taylor Triplex tampers and completed by McCoy sheepsfoot rollers, which used good dirt saved from the topmost parts in other sections for this work. After structure backfill had been shaped up, the stage was set for high-speed dirt work by Schmidt's equipment fleet.

Long and short haul work

The main earthmoving spread consisted of equipment well suited to the terrain and job requirements. It included three Caterpillar DW20's, able to haul good loads of material at high speed over long distances. A Wooldridge 27½-cubic-yard scraper, pulled by an Allis-Chalmers HD-21, worked on steep grades to excavate fills over old concrete boxes. Occasionally, this scraper did finish grading.

The Schmidt Co., which makes a practice of push-loading Caterpillar DW20's with two powerful tractors instead of one, had two Allis-Chalmers HD-21's with push blocks on the line for that purpose. The work of these two tractors, the firm believes, paid off by turning out bigger loads from the pit, reducing tire wear on the DW20's by holding wheel spinning to a minimum, and saving wear on the gear trains of the scraper.

In addition to four Allis-Chalmers HD-20 push tractors, auxiliary equipment included a pair of Caterpillar D8's with McCoy dual-drum 6-foot-diameter sheepsfoot rollers, and three 2,000-gallon water tanks mounted on Ford F-8 trucks. Water for compaction purposes, secured from the Colorado River which parallels the job, was loaded to the trucks by a centrifugal pumping station and standpipe arrangement at the river.

The earthmoving spread worked at good productive capacity, converting cut material into fill quite rapidly. The DW20's were push-loaded by two HD-20's in 20 to 30 seconds. When the one-way haul stretched out to 2½ miles, the machines still operated economically, making four trips per hour. On shorter haul work—which was average through most of the job—they doubled this hourly number of trips.

Three crushing setups

The base course on this job averaged 23 inches in thickness, including both the pit-run subbase and the crushed select rock, and required 81,000 tons of material. It included two types—select material and the ¾-inch mineral filler for the paving mix.

The Colorado River bottom provided an unlimited supply of excellent natural gravel pits for this crushing

(*Continued on next page*)

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(Continued from preceding page)

assignment. To minimize hauls, the Colorado State Highway Department generally specifies more than one crushing site under these conditions, and on this job, three setups were planned. Crushing conditions in all three sites were virtually identical.

Schmidt used a Cedarapids Master Tandem plant, driven by a Caterpillar D364 diesel-power unit. A Cedarapids primary jaw crusher unit, driven by a D13000, was set ahead of the Master Tandem to handle rock over 5 or 6 inches in size. According to project officials, the type of primary unit used used at this point does a great deal for production by removing much of the hardest crushing from the portable plant.

One of the most useful pieces of equipment on the Colorado road-reconstruction job is this Bucyrus-Erie 10-B truck-mounted shovel, here ditching for structures. The rig did more than double duty—breaking old concrete with a breaker ball, placing pipe, and doing other small jobs.

The material was first dug out of the pit by a Bucyrus-Erie 38-B shovel fitted with a B-E 1½-yard dipper. This machine loaded to a pair of Koehring Dumptors, which carried the material to the plant trap. From here, it went into the 25 × 40 primary jaw unit, where all the big boulders were broken down. The through product passed up a short conveyor run and dumped into a small surge hopper where a reciprocating plate feeder took it out the bottom and put it on a short elevating conveyor belt which led to the Cedarapids crushing and screening unit. The material then passed through a 10 × 36 jaw crusher arranged in closed circuit with the plant screen deck. The plant also had a set of 22 × 40 roll crushers, also arranged in a closed circuit with the screen deck, which passed acceptable material through and over a conveyor-belt system to temporary surge storage. All material from this conveyor belt was stacked in a one-stockpile surge arrangement, and a Caterpillar D8 with straight dozer blade kept the material level.

In breaking down the 1-inch-minus select material, about 40 per cent of the pit-run input was sent through plant crushers. On ¾-inch aggregate crushing, the percentage of crushed material jumped to about 70. The plant produced about 290 tons per hour on base-course production, and an average 125 tons per hour of ¾-inch aggregate.

Crusher maintenance

On this job, some effective crusher maintenance methods, which plant superintendent Frank Gamarra has developed over the years, were put to good use. Gamarra has found that any attempt at hardfacing on jaw-

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crusher plates is not too successful. Done in the field, it frequently warps the jaws or makes them wear unevenly. The jaw crushers are simply adjusted until they wear out, and are replaced by factory-made units. But in sustained operation of the crushing plant, almost continuous maintenance was necessary on the roll crushers in order that the plant's high output be maintained. The plant worked a double shift, and Gamarra scheduled at least eight hours of hardface welding operations on the roll crushers.

The best combination of rods for this purpose, Gamarra found, is Resisto-Loy's Magna-Tone rod and Stoody 21 hardfacing. The Stoody 21 is held in the clip of the welding torch while the Magna-Tone—a bare-type rod—is held in the welder's left hand. With this combination, welding is done rapidly, and the completed job has good wear resistance. A good welder can apply 40 to 50 pounds in an 8-hour shift—fast work for welding of this type. While giving excellent results, the combination requires only a moderate outlay. Stoody 21 can be purchased in this area for about 65 cents a pound and Magna-Tone for about 25 cents a pound, so that effective hardfacing can be done for about 40 cents a pound. The contractor also did a limited amount of hardfacing on this job with Resisto-Loy's 5/16 hardfacing rod.

Paving

The installation of gravel base and crushed rock followed conventional lines. Trucked to the highway by a fleet of International and GMC trucks, the material was dumped and blade-mixed by a Caterpillar No. 12 motor grader to eliminate all segregation, while water trucks sprayed moisture into the windrow for compaction purposes. The material was laid out as a Cat motor grader cut into the windrow, sweeping the rock across the road in relatively thin lifts, and a Bros rubber-tire pneumatic rolled continuously.

Production of the hot-mix involved a long haul of asphalt across the Rockies, but aside from that feature, this operation was also routine. Hot-mix was produced in a Barber-Greene continuous-mix plant, and a Barber-Greene finisher laid the material on the roadway. Compaction of the two 12-foot lanes was done by a Buffalo-Springfield roller.

Personnel

Field operations for Schmidt Construction Co. were under the general supervision of Vern Brandon, general superintendent. Frank Gamarra, crusher-plant superintendent, was in general charge of asphalt paving. Mark U. Watrous, chief engineer, heads the Colorado Department of Highways, which designed and supervised the work. W. J. Walsh is construction engineer, and R. A. McCoy is district engineer at Grand Junction. Resident engineer on the job was A. H. Kiesel, and district construction engineer is Homer W. Gray.

THE END

For more facts, circle No. 566 →

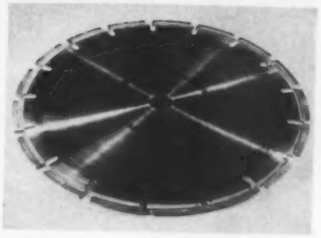
Overlapping cutting edge increases service life of concrete blade

■ A diamond blade introduced by Carborundum Co., Niagara Falls, N. Y., for sawing joints in either green or cured concrete is reported to have exceptional wear characteristics. Bonded with tungsten carbide, the DM190 blade cuts at rates up to 10 feet per minute, depending on the type of aggregate used in the mix, at a depth of 2 inches. The rate of cut, of course, also depends on the cutting machine's horsepower and on whether it is self-propelled or manually pushed.

The performance and wear characteristics of the DM190 is credited to an improvement in the design of the diamond segments mounted on the periphery of the steel center. With these segments designed so that a lip of the tungsten carbide segment overlaps the leading edge of the land, the problem of excessive wear of the steel center directly beneath each segment has been eliminated.

While conventional blades often drop segments as the steel center wears, the new design of the DM190 allows the blade to be used until the full depth of the diamond segment is consumed.

For further information write to the company, or use the Request Card that is bound in at page 18 of this issue. Circle No. 614.



The new Carborundum DM190 concrete-cutting blade is designed so that the tungsten-carbide segments project over the grooves in the cutting edge.

Euclid S-7 Scraper, shown at left working on a road job in Washington, has excellent power to weight ratio and good maneuverability for close quarter work. It's designed for easy operation and accessibility of all major components.

Euclid Scrapers make the dirt fly!

Working on highway relocation in Arkansas, Euclid 12 yd. Scrapers spread their loads on the run. This model has a 194 h.p. engine and the stability to travel at higher speeds over longer haul distances with heaped loads up to 15 yds.

OWNERS in every part of the country report that "Euc" Scrapers out perform all others of comparable size . . . get more work done at lower cost on all kinds of road construction and maintenance jobs.

For county and township work, secondary road building and other relatively small yardage jobs the new Euclid S-7 Scraper has a lot of cost cutting features. It utilizes the same lever type hydraulic operation used in larger Euclid Scrapers . . . eliminates the down time and expense caused by cable breakage. The S-7 has excellent power-to-weight ratio — 7 yd. struck capacity and 143 h.p. — and good maneuverability for close quarter work.

On medium yardage projects where haul distances are longer and larger loads must be hauled, the 12 yard "Euc" is a low cost producer. It is powered by a 194 or 200 h.p. engine . . . loads fast and carries heaped loads of 15 yards . . . and the stability of the 4 wheel tractor permits higher travel speeds on longer hauls.

Call your Euclid Dealer for complete information on these scrapers and other Euclid earth moving equipment that can move more loads per hour at lower operating and maintenance cost.

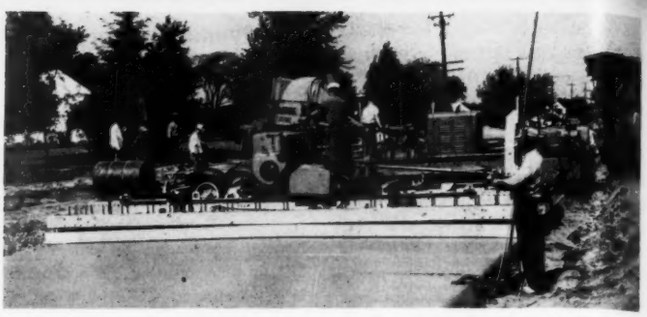
EUCLID DIVISION GENERAL MOTORS CORPORATION, Cleveland 17, Ohio

Euclid Equipment

FOR MOVING EARTH, ROCK, COAL AND ORE

GENERAL MOTORS

The GRM compaction screed finisher with 16-inch screeds here works through 2-inch-slump concrete to give a smooth finish in one pass.



Six forward, six reverse, and four independent screed speeds allow the GRM 5-S finisher to work close behind the concrete spreader. This model has a built-in transportation rig.

New firm has extensive l[illegible] of r[illegible]

■ Five new road-building machines, including what is reported to be a unique curb builder, and a complete line of paving forms are now being offered by General Road Machines, Inc., Niles, Ohio, a new manufacturing firm organized five months ago.

A compaction screed finisher introduced features 16-inch-wide screeds. According to the manufacturer, on-the-job tests indicate that this machine is capable of one-pass performance. Two models are offered—the 5-S, a completely portable machine with telescopic width adjustment from 10 to 25 feet, and the 4-S, a nonportable machine with width adjustment from 10 to 25 feet. The finisher is reported to be a substantial form saver, as it operates smoothly with a minimum of side sway, thus eliminating the wear and tear to which forms are often subjected. Because of its exclusive speed selectivity (six forward and six reverse speeds, plus four completely independent screed speeds) the machine is said to actually crowd the concrete spreader, setting the pace for more footage per day.

GRM's line also includes a completely adjustable subgrade planer. Featuring multiple telescopic and vertical adjustments, the subgrader is made in two models, with telescopic widths from 10 to 15 feet and 20 to 25 feet. Both models can provide vertical settings up to 16 inches. Slotted holes on the grader blades and positioner plates reportedly allow simple, yet accurate settings, while the large front-wheel screw adjustments permit minute thicknesses of slabs. In addition, the rear wheels have a four-step pin lift for vertical alignment.

The GRM curing machine is a highly versatile piece of equipment, according to the manufacturer. Of extra-heavy channel-frame construction, it employs two spray nozzles fixed to double sweeping arms, thus assuring a fine dual-spray pattern in strict accordance with specifications. The spray nozzles are enclosed with wind shields so that a consistent spray pattern can be maintained. The rig is said to be capable of working up to 300 per cent faster than other makes of similar equipment, and to provide closer control of quick-drying

Cleveland "80" uses long reach, accurate pipe handling, teams up with trencher on tough 10-mile water line job

KIEFFER BROTHERS, contractors of Mount Carmel, Ill., matched their Cleveland Model 140 trencher and Model 80 side crane against 10 miles of really rough work on a 10-inch cast iron water main job in Loogootee, Ind., this winter. They report their decision paid off well in both time and money saved.

Cutting the 10-mile line through hilly terrain alongside a curving road, Kieffers' trencher maintained a fast, dependable pace overcoming frost and plenty of Indiana sandstone. Despite the tough digging in close quarters, the "140" left a clean trench ready for pipelaying.

Kieffers' "80" kept the pipelaying operation up close, usually only a couple of joints behind the trencher. The one-man-operated "80" picked up the pipe strung along the opposite side of the road, turned on its maneuverable full crawlers and accurately positioned the pipe for fast, easy installation. The Model 80's large, easy-acting hydraulic clutches and smooth handling brakes and boom hoist which placed and held pipe exactly to required positions also are responsible for its outstanding speed and accuracy when employed as a backfiller.

Cleveland's perfect operator visibility and well placed foot and hand controls, clearly shown in these photos, keep operators at top efficiency for top production all day long.

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CLEVELAND

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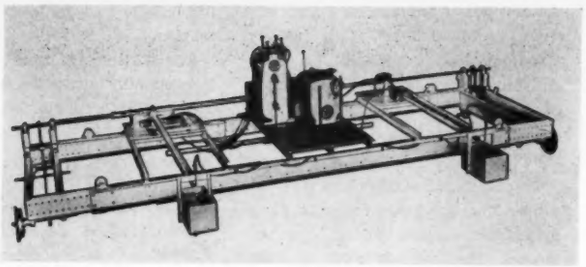
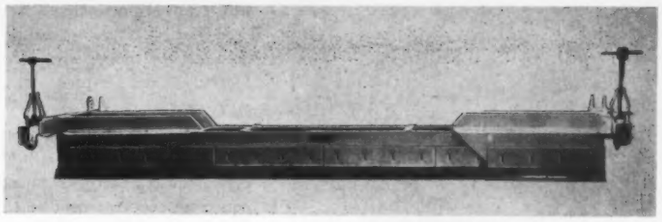
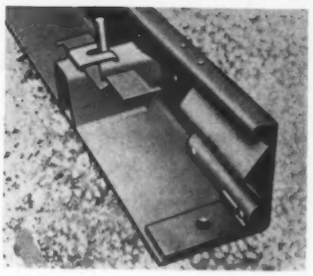


Top travel and working speeds are said to be features of the GRM curing machine.





The GRM subgrade planer (above) provides vertical settings up to 16 inches. At right, GRM's Master road form.

sive line of road-building machinery

concrete and faster traverse on forms.

A final finisher has just been job-tested by the company. This machine combines into one unit each of the mechanisms necessary to final-finish all types of concrete roads. Final-finishing specifications vary from state to state and from city to city; the new GRM final finisher is a high-speed composite machine that reportedly enables road contractors to comply with all final finishing requirements with but a single piece of equipment.

GRM's unique offering in the line of concrete-finishing equipment is the automatic curb builder now being delivered to the field. The device is said to eliminate the back-breaking task of hand-finishing curbs. Hydraulically activated, it mechanically finishes intergral roll-type curbs.

A complete line of concrete-paving forms is also being offered. These include 4-inch sidewalk type, combination curb and gutter forms, and 17-inch double-purpose airport paving forms. All are made of the highest grade steel with full electro-welded fabrication.

A new GRM float machine is now being put into production and the company plans to introduce a subgrade testing machine, concrete spreaders, joint machines, cap strips, rolling and power bridges, and a full line of bins and batching plants within the coming year.

General Road Machines, Inc. reports that it is presently exceeding production schedules, and that it is prepared to fill orders without delay.

For further information write to the company, or use the Request Card at page 18. Circle No. 684.

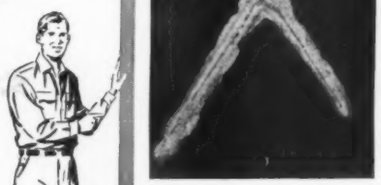
Booklet describes tractor rated at 230 horsepower

■ A booklet on the newly announced Caterpillar D9 crawler tractor is available on request. Rated at 230 drawbar horsepower, the D9 features turbocharging among other advances in tractor design.

The literature includes pictures of the tractor, its engine, and the turbocharger unit.

To obtain Form No. 31555 write to Caterpillar Tractor Co., Peoria 8, Ill., or use the Request Card at page 18. Circle No. 758.

WHICH TRUCK LASTS LONGER?



CORROSION spreads rapidly when paint was scratched, exposing untreated sheet metal.

DURIDIZED panel which got the same scratch shows how corrosion was prevented from spreading.

AUTOCAR, of course,

with Heavy Gage Duridized Sheet Metal

Here's Why
AUTOCARS
Last and Last

Autocar sheet metal gets the special duridizing treatment in the modern, new Autocar plant at Exton, Pa. Then painted surfaces are baked in the infra-red ovens. To show what this means to Autocar life, special weathering tests conducted by Autocar engineers dramatically prove the superiority. The sheet metal panels shown above were painted under identical conditions and scratches made through the baked paint films into the base metal. The panels were then exposed to the elements. The results tell the long life story.

COMPARE these features, and you'll pick Autocar every time!

It's heavier-gage sheet metal than used on most other makes, but, more than that, there is extra care given Autocar sheet metal because of the *duridizing* process that produces on the cleaned metal surface a thin, hard chemical coating that increases paint life . . . resists corrosion and wear . . . provides a firm anchor for baked-on paint.

AUTOCAR TRUCKS

AUTOCAR DIVISION OF THE WHITE MOTOR COMPANY, EXTON, PA.

SEND ME FACTS
THAT PROVE AUTOCAR LONG LIFE

AUTOCAR DIVISION, The White Motor Company
Exton, Pennsylvania

Please send me copy of new Autocar Facts Book

Name_____

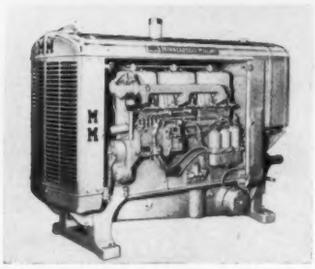
Position_____

Firm_____

City_____ Zone____ State_____

23J

For more facts, use Reader-Reply Card opposite page 18 and circle No. 568



The new Minneapolis-Moline D605-6A diesel-power unit

Diesel engine features temperature control

■ A new 105-hp diesel-power unit featuring a specially designed water-jacketed base pan has been announced by Minneapolis-Moline Co., Box 1050, Minneapolis 1, Minn. The six-cylinder D605-6A engine has a bore of 4⅝ inches and stroke of 6 inches. Piston displacement is 605 cubic inches.

The engine's coolant-jacketed base pan, through which coolant circulates continuously, features "thermoclad" construction. This new MM development maintains a uniform operating temperature from cylinder heads to bottom of base pan. With this system, the bypass routes the warming coolant through the engine only, until a predetermined temperature is reached. Then the thermostat opens, gradually allowing properly heated coolant to circulate through the radiator. Oil is also held at the correct operating temperature, regardless of load or atmospheric temperature, without use of any auxiliary heat exchanger equipment.

Cylinder heads are cast in pairs, and have special coolant nozzles for each combustion chamber to direct the coolant to the hottest parts of the heads.

The combustion chambers are designed for progressive burning of diesel fuel to give sustained power strokes. The "energy cell" in each cylinder regulates the burning of gases and increases rotary turbulence of the gas for steady, thorough, clean burning of the fuel.

A Bosch multiple-plunger injection pump gives quick response and accurately meters the fuel for heavy load demands. Self-cleaning pintle-type fuel nozzles are installed with O-ring seals for protection against oil leakage and for easy removal in servicing.

For further information write to the company, or use the Request Card at page 18. Circle No. 757.

New wheel tractors

■ Continuing its expansion in the industrial and farm-tractor field, Ford Motor Co. has announced three special utility models. This brings to 11 the number of Ford tractor models introduced since January.

The new four-wheel models are in two power series. The 600 with 134-cubic-inch engine displacement delivers about 26.8 horsepower at the drawbar. The 800 has a displacement of 172 cubic inches and is rated at 35 horsepower at the drawbar.

As adaptations of the new four-wheel tractor line introduced by Ford earlier this year, the 620 and the 30 per cent more powerful 820 are designed for towing and for mounting construction machinery such as loaders and backhoes.

With the addition of the special utility tractors, Ford now offers five models in the 600 series and three models in the 800 series.

For further information write to Tractor & Implement Div., Ford Motor Co., Birmingham, Mich., or use the Request Card at page 18. Circle No. 656.

Vibratory compactor is self-propelled unit

■ A new self-propelled vibratory compactor that rapidly compacts single-course macadam and gravel subbases is illustrated in a folder from Roadequip Mfg. Co., 30210 Lakeland Blvd., Wickliffe, Ohio.

The Roadpacker has six 420-pound shoes mounted below the machine and between the front and rear wheels to provide a vibrating and tamping action. The shoes vibrate approximately ¼ inch, and are driven hydraulically through a completely sealed system.

With this equipment, coarse aggregate for bases up to 12 inches thick can be spread in a single layer and uniformly compacted to a final density over a width of 13 feet 1 inch.

Features illustrated are the rubber-tire Roadpacker's mobility, efficient vertical tamping action, and forward or backward operation.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 655.

HOW A TOUGH BUILDING PROBLEM BECAME A 30% SAVING

with Coffing Quik-Lift Electric Hoists

The Problem

J. M. Odom, Austin, Texas, building constructor, faced heavy financial loss, when unforeseen setbacks during excavation put the construction of a stone church far behind schedule. Stone laying could not be completed in the remaining time — by conventional methods.

The Solution

Mr. Odom mounted four Coffing Quik-Lift Electric Hoists and trolleys on an I-beam which ran the length of the wall. Limestone blocks, weighing 300 to 500 lb., came from the quarry with Lewis pin holes in their upper edges. Using a simple chain sling and Lewis pins, Odom raised and positioned the blocks with the Coffing Quik-Lifts.

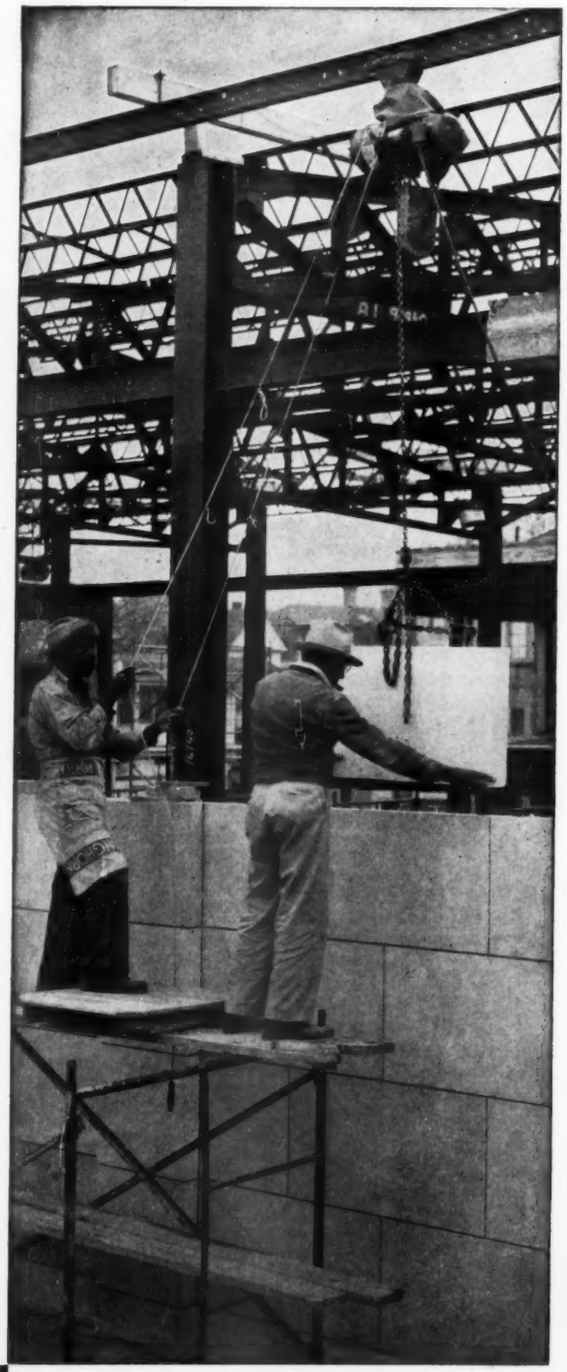
The Results

Quik-Lifts eliminated the need for a material tower and A-frames. Blocks were lifted and positioned on one operation instead of two. Quik-Lifts allowed greater control in positioning since load chain was plumb at all times. Manual handling of stone was virtually eliminated. The need for unskilled labor was reduced about 50 percent. This new method cut two months off the normal stone-laying time, while over-all savings were estimated to be about 30 percent.

Wherever you see durable Coffing Quik-Lift Electric Hoists at work, you can be sure they are saving time, labor and costs. Choice of seventeen sizes with capacities up to 4,000 lb. to fit your requirements. For full information write for Bulletin C-QL.

Coffing Hoist Division
Duff-Norton Company
Danville, Illinois

Hoist-Alls • Safety-Pull Ratchet Lever Hoists • Mighty-Midget Pullers • Spur-Gear Hoists • Differential Chain Hoists • Load Binders • I-Beam Trolleys

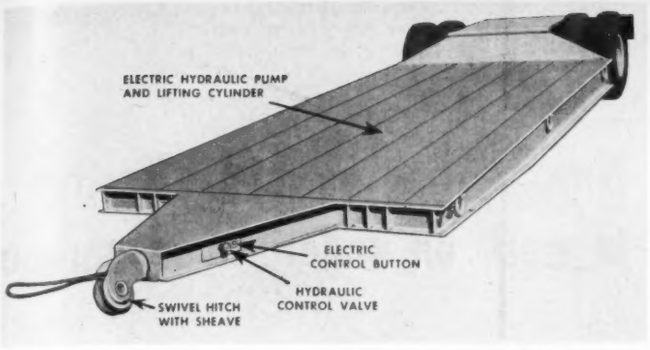


Coffing Quik-Lift Electric Hoists were used to raise and place 500-lb. blocks of limestone. New system accounted for a 30 percent over-all saving in construction of a stone church.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 569

KIESLER *Since 1892*
2-LEVER ARM CLAM SHELL BUCKETS with POWER ON BOTH SHELLS
"A PAYLOAD EVERY TRIP"
The ONLY Bucket that DIGS-IN instead of Lifting-Out. Write for literature
JOS. F. KIESLER COMPANY
934 W. HURON ST. CHICAGO 22, ILL.

For more facts, circle No. 570


ELECTRIC HYDRAULIC PUMP AND LIFTING CYLINDER
ELECTRIC CONTROL BUTTON
HYDRAULIC CONTROL VALVE
SWIVEL HITCH WITH SHEAVE

The new LaCrosse Model LXP-14 front-loading low-bed trailer.

New front-loading trailer for hauling big equipment

■ A new front-loading low-bed trailer, designed especially for fast transporting of blacktop pavers, rollers, and other heavy machinery has been announced by LaCrosse Trailer Corp., 418 Gould St., LaCrosse, Wis.

Employing a self-contained power system with a special sheave-type hitch and simple cable-lift arrangement, the new Model LXP-14 trailer can readily be operated behind any standard truck, regradless of whether or not the truck has a hoist. A motor-driven hydraulic pump and ram setup, located underneath the trailer bed, actuates the cable which lowers the trailer platform to a 7-inch height for loading or unloading over the front end. Power for the electric motor is supplied by battery from the towing truck.

The new LaCrosse trailer is available in two models. An 8-ton unit has an 8×13-foot load surface, rides on four 7:50×15 12-ply tires, and weighs approximately 3,600 pounds. A 14-ton model has an 8×16-foot deck, carries four 10:00×15 14-ply tires, and weighs about 5,500 pounds. Both have a platform height of 20 inches.

The complete lifting or lowering cycle takes about five minutes, according to the manufacturer, thus making the trailer a real time-saver for moving equipment on the job, as well as between jobs.

For further information write to the company, or use the Request Card at page 18. Circle No. 680.

Buck representative

S. S. Bradford is the authorized representative for The Buck Equipment Corp., Cincinnati, Ohio, in Cincinnati and Dayton, Ohio; Louisville, Ky.; Chicago, Ill.; and the state of Indiana. He will sell all models of Buck hoisting machines.

For more facts, circle No. 571

Easy-to-use hose clamp

■ A new type of hose clamp can be fixed in place in three seconds with an ordinary pincers, according to the manufacturer, Circle Clamp Corp., 39 Broadway, New York 6, N. Y.

The one-piece clamp is round and has U-shaped folds or lugs. Smaller-size clamps have two lugs and the larger one, three. The device is merely slipped on the hose or part and crimped in place by squeezing the parallel sides of the lugs together with the pincers.

The clamps are made from various ferrous and nonferrous metals. They are available in 20 sizes ranging from ¼ to 2⅝ inches ID. Larger sizes are produced on request.

For further information write to the company, or use the Request Card that is bound in at page 18. Circle No. 629.

The Circle hose clamp is tightened around hose by squeezing the protruding lugs with pincers.

TALLEST BUILDING IN BRITISH EMPIRE

Now under construction in Toronto!

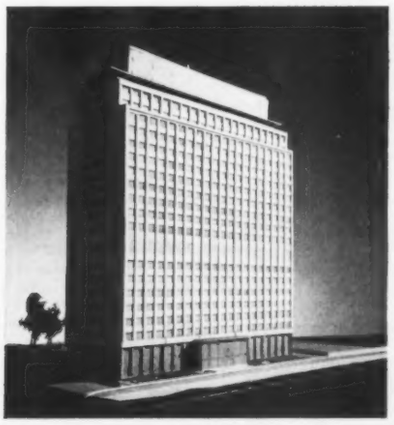
Excavating for the new Imperial Oil Building, now under construction in Toronto, is this Gar Wood crane owned by the general contractors, Pigott Construction Co., Ltd., of Hamilton and Toronto. As one of Canada's leading building contractors, Pigott owns all the equipment required to do their own excavating, pile driving and concrete foundation work.

The new building, housing the executive offices of Imperial Oil Ltd., will consist of 19 floors and penthouse. It will be slightly higher than the Canadian Bank of Commerce Building, now the British Empire's tallest building.

On this, or any job, calling for crane, dragline, clam, shovel, trench hoe or pile driver—Gar Wood gives you peak performance with operating economy. An efficient 20 ton truck crane is also available and *only Gar Wood* offers the new Foundation Borer, the revolutionary attachment that combines boring and belling into one streamlined operation.

No. 5516

GAR WOOD
INDUSTRIES, INC.
WAYNE, MICHIGAN



IMPERIAL OIL BUILDING in uptown Toronto will cost about $8,000,000. It will measure 245 by 88 ft. on the ground floor and will be 287 ft. high, framed in structural steel and faced with gray limestone.

NEW 287 FT. IMPERIAL OIL BUILDING TO BE EMPIRE'S TALLEST

For more facts, use Reader-Reply Card opposite page 18 and circle No. 572

A Manitowoc 2000 Speedcrane which placed sheet piling uses a McKiernan-Terry hammer to drive sheeting to rock. The continuous row of piling and the natural wedge of ground inside the excavation not only protected adjacent streets but also eliminated the need for shoring. *C&E Staff Photos*

New shoring method effective in work on underground garage

Inner bays of three-level structure are excavated and built first, as outer bays are left with earth slope to back up steel sheeting

Protecting the adjacent streets against cave-in—one of the major excavating problems in constructing the block-square Auditorium Plaza Garage in the heart of Kansas City, Mo.—was done with a rather unusual shoring method which worked out very satisfactorily and proved to be economical for the contractor.

The 1,225-car parking garage being built for the city is estimated to cost $3,500,000 and measures 345×440 feet. Occupying the entire city block across the street from the huge municipal auditorium, it will have three sloping parking floors, which will reduce the length of the ramps, and will be joined to the auditorium by a pedestrian tunnel running under the street.

To excavate this area safely, Swenson Construction Co., Kansas City Mo., drove sheet piling to rock in a continuous row on about the curb lines of 12th, 13th, Wyandotte, and Central Streets—the four busy thoroughfares surrounding the site—but did not carry the excavation up to the sheeting. A substantial shoulder of natural earth was left between the sheeting and the excavation.

This shoulder was about 30 feet wide at the bottom and sloped to a point near the sheeting at the top. This meant that only a small amount of shoring was required in areas where old basements penetrated into the street area. Then, in constructing the three-story underground struc-

save 3 ways
MONEY MATERIALS MANPOWER

on your building construction jobs with
ROOSHORS
the one-man adjustable shore

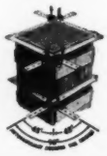
SIMPLE . . . because ROOSHORS are adjustable in place; no cutting, no fitting, no wedging.

SAFE . . because the ROOSHOR lock assures four times the necessary pressure—the greater the load, the greater the grip.

SPEEDY because every ROOSHOR fits anywhere; one man can carry, set, release and remove to new location.

You can cut your cost of labor and lumber. You can eliminate waste of time and money. You can actually save three ways when you shore with NEW adjustable Rooshors (Extension Type). This NEW Rooshor (Extension Type) is adjustable to any height or any fraction of an inch. Here you get three shores in one because the NEW adjustable Rooshor can be used as a FLAT-HEAD shore, as a MALE-HEAD shore or as an Extension Shore for high stories. The wooden upper member makes nailing of bracing easy. One type of shore for ALL types of structures, giving greater versatility in shoring equipment than has ever before been possible.

ROOS COLUMN CLAMPS • Speed up jobs, too. Have six distinct advantages . . two identical units • open either way • larger bars give greater strength • no loose parts • cannot be put on wrong • only hammer needed to tighten.



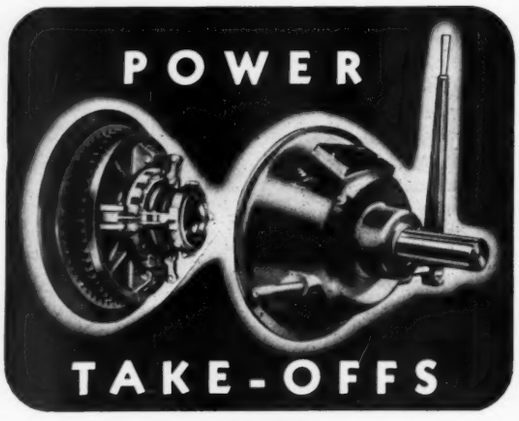
ROOSHORS and ROOS COLUMN CLAMPS are available for rental with purchase option from warehouse stocks in principal cities. Write for Bulletin 355.

MAIL THIS COUPON TODAY

BAKER-ROOS, INC. C&E
P. O. Box 892, Indianapolis 6, Indiana
Gentlemen: Please rush additional information on Rooshors and Roos Column Clamps, without obligation.
Name_____
Company_____
Address_____
City_____ State_____

For more facts, use Reader-Reply Card opposite page 18 and circle No. 573

ROCKFORD



ROLLER BEARING EQUIPPED

SELF CONTAINED UNIT
WIDE RANGE OF SIZES
CONSERVATIVE RATING
ROLLER BEARINGS
FINE ADJUSTMENT
ACCURATE BALANCE
S.A.E. DIMENSIONS

* ROCKFORD POWER TAKE-OFFS are equipped with roller bearings of ample proportions to carry the loads to be placed upon them. Provision is made for adjusting the tapered roller bearings that support the shaft. These and the clutch release bearing can be lubricated from outside the housing.

Send for This Handy Bulletin

Shows typical installations of ROCKFORD CLUTCHES and POWER TAKE-OFFS. Contains diagrams of unique applications. Furnishes capacity tables, dimensions and complete specifications.

ROCKFORD CLUTCH DIVISION BORG-WARNER
▲ 314 Catherine Street, Rockford, Illinois, U.S.A. ▲

CLUTCHES

For more facts, use Reader-Reply Card opposite page 18 and circle No. 574

Broken concrete from old buildings at the site is picked up by an Allis-Chalmers HD-9 front-end shovel and transferred to a Reo dump truck which will haul to the waste dump. Reinforcing steel from the demolished structures is salvaged for scrap.

A Joy wagon drill powered by a Joy compressor puts down blast holes where excavation is to be carried below rock elevation. Holes will be loaded lightly with Atlas dynamite because of the proximity of large buildings.

ture, Swenson omitted the outer bays of the building, substantially finishing the inner part of the garage before braces were placed between the inner bay and the sheeting which supported the streets.

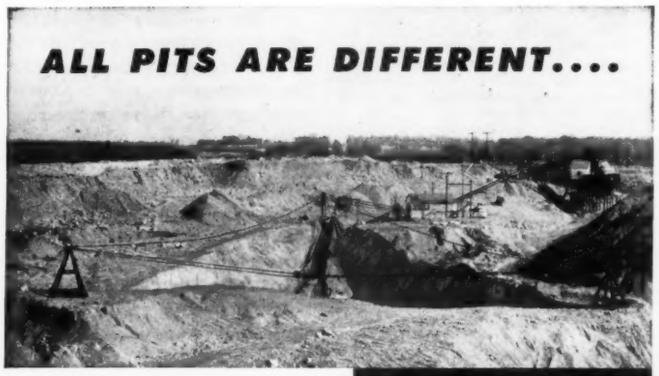
These braces, roughly 30 feet long, were carefully placed so that they would not interfere with the principal members of the structural frame in the exterior bay. Once they were in place, the excavation was completed and the exterior bay constructed.

Old buildings removed

The driving of the sheet piling was held up until existing buildings on the site were razed and debris removed by George J. Shaw Hauling Co., Inc., Kansas City, Mo., under a separate contract with the city. Taking down the old Robert E. Lee hotel building — a reinforced - concrete frame structure—proved to be a difficult job, and Shaw was still at work in this corner of the site long after the building contractor began the 2,500,000 cubic-yard excavating job in the remainder of the area.

Shaw used two Northwest cranes with long booms to swing and drop breaker balls and knock the structure down. Some of the demolition was done at night when heavily traveled streets adjacent to the site could be blocked off. An Allis-Chalmers HD-9 tractor with front-end shovel loaded the broken concrete, brickbats, and other debris into trucks hauling to waste dumps. Old reinforcing steel which could be separated from the concrete was salvaged for scrap.

Excavation for the building, done under a subcontract by George Bennett Construction Co., Kansas City, Kans., went about 20 feet to rock from street grade. Some rock, ranging from 0 to about 8 feet, had to be removed from about half the area to get down to first-floor grade. A fan room plus a number of tunnels which extended as much as 10 feet below floor grade had to be excavated out of solid



3-cu. yd. rapid shifter

THAT'S WHY
SAUERMAN SCRAPER MACHINES ARE JOB-ENGINEERED FOR YOUR PLANT

Your deposit may require a manually-shifted tail and bridle system or it may need a rapid shifter to make the many moves necessary in shallow pit operation or handling of non-caving material. If large capacities and long hauls are involved a Sauerman Track Cable machine may best suit your needs. In the latter arrangement, the scraper bucket is attached by chains to a carrier traveling on a track cable. The bucket conveys its load at ground level and is discharged at the dumping point by merely tightening the track cable. Bucket and carrier glide back to the digging point at high speed when brake is released.

Sauerman scrapers work equally well on hills, boggy ground or in deep water. One man controls digging, hauling and dumping from a safe location, which may be as much as 1,000 ft. from the deposit. Sauerman machines cost less than any other types of excavators of similar capacities. Operating costs are very low, because you eliminate the power cost involved in moving heavy machinery around the area. A drag scraper maintains its efficiency for many years. When parts are replaced—sheaves, clutch or brake linings—the machine is restored to practically new condition, even though it may be twenty or more years old.

Write to Sauerman's experienced engineers about your plant

They will give you specific recommendations without obligation. Request Catalog A, Drag Scrapers—24 pages of job photos and specifications.

SAUERMAN BROS. INC.
616 S. 28th AVE., BELLWOOD, ILL.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 575

SEAL the SURFACE to PROTECT the BASE

STANDARD STEEL PRESSURE DISTRIBUTOR GIVES UNIFORM CURB-TO-CURB SURFACING

Uniform Pressure and Temperature Along the Entire Spray Bar Assures Accurate Application and Proper Penetration of Material.

Proper surfacing is the solution to withstanding winter freezes. Water that penetrates to sub-base causes heavy damage year after year to roads not correctly and uniformly surfaced from curb to curb. With the Standard Steel Model 424 Distributor there's rarely a bad spot in a mile of coating. Faster operation — no delays due to tinkering, dismantling and cleaning spray bar, or warm-up time. For primary construction, this equipment far excels all competitive makes. Let us give you the facts on "Competitive Tests".

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OTHER PRODUCTS

Maintenance Distributors, Tar Kettles, Patch Rollers, Supply Tanks, Tool Heaters, Asphalt Tools, Street Flushers, Construction Brooms.

Built to the Highest Standard PD-2

Standard Steel Works NORTH KANSAS CITY, MO.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 576

Since there is no way for rain water or ground seepage to run out of the excavation, the contractor uses a Gorman-Rupp 4-inch centrifugal pump in one of the low areas.

C&E Staff Photo

(Continued from preceding page)

rock. Where the floor level was above rock, footing holes were dug to solid rock, and footings and columns carried up to grade.

Most of the excavation was handled by two Northwest machines. One was an 80-D shovel equipped with a 2½ yard dipper; the other was a 6 dragline using a Hendrix 2½-yard dragline bucket. These machines excavated earth, old basement walls, loose rock, and blasted rock, loading the materials into a fleet of dump trucks which hauled about two miles over city streets to city-owned property along the Missouri River. When the rock became too solid for the shovel to handle, Bennett brought in a Joy wagon drill and a Joy air compressor to drill blast holes. Light charges of Atlas dynamite loosened the rock enough so that the shovel could load it out.

Footing holes were dug by hand after paving breakers broke up loose rock. Some of the utility trenches were also excavated by hand, and one of the utility subcontractors brought in a truck-mounted Schield Bantam ⅜-yard backhoe for the trenching. Since there was no way for rainwater to run out of the excavation, this and some ground seepage had to be pumped during the construction period with a Gorman-Rupp 4-inch, a C. H. & E. 3-inch, and a pair of Jaeger 2-inch units.

Drive sheathing all around site

While this work was under way, Swenson began driving the row of sheet piling which supported the four surrounding streets when excavation was complete. Sheathing was placed from 4 to 6 feet outside the outer walls of the building and driven into rock. A Manitowoc 2000 crane set the sheets and handled the McKiernan-Terry 9-B-2 and 10-B-3 steam hammers which did the driving.

The excavation, not carried out to the sheeting, stopped at the bottom about 30 feet back from the sheet piling and sloped up so that the sides would stand unaided.

As soon as excavation was completed in the central area, the contractor started forming and pouring the structure. Wherever possible, footings on the rock were poured directly in the excavations. Bethlehem steel column forms were used to form the round columns. Some wall sections were formed with Uni-Forms, and others were poured in job-fabricated forms of ¾-inch plywood facing on 2×6 joists backed by 4×6 ledgers. Acrow shores were used extensively to support the forming for the flat-slab floor system.

Transit mixers from the Ready Mixed Concrete Co., Kansas City, Mo., delivered concrete to the job, chuting the material directly to forms for footings and other low pours. Most of the concrete above the lowest floor was placed by a Pumpcrete setup, mounted on a platform far enough below street grade so that the ready-mix trucks could discharge into its hopper from the street.

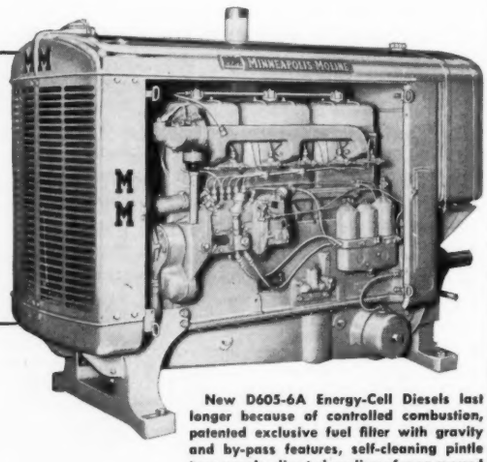
Floors are ramps

Bidding quantities, in addition to the 2,500,000 cubic yards of excavation, included 25,000 cubic yards of concrete and 1,650 tons of reinforcing steel. The structural frame of the

WHY IT PAYS TO OWN INDUSTRIAL DIESELS WITH REMOVABLE CYLINDER BLOCKS AND HEADS

New MM diesels were developed with *energy-cells* to make them last longer, do more and go farther with less down-time and maintenance.

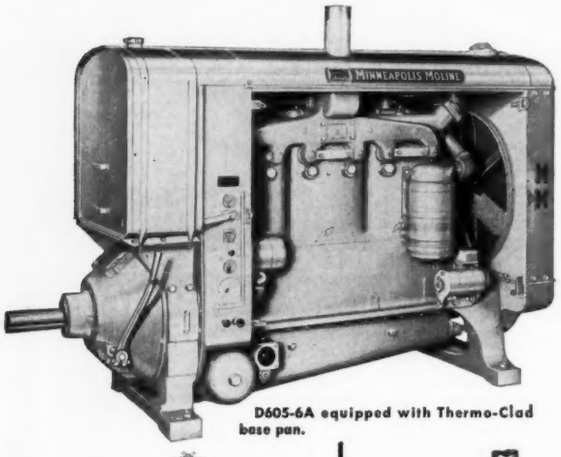
To provide owners with lower cost maintenance when necessary MM diesels are the most advanced and soundly engineered because the cylinder blocks are cast in pairs separate from the crankcase.



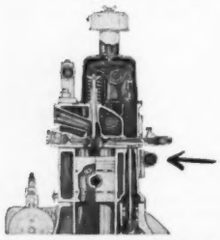
New D605-6A Energy-Cell Diesels last longer because of controlled combustion, patented exclusive fuel filter with gravity and by-pass features, self-cleaning pintle type nozzle, directed cooling of area around combustion chambers.

YOU GET THESE ADDED ADVANTAGES . . .

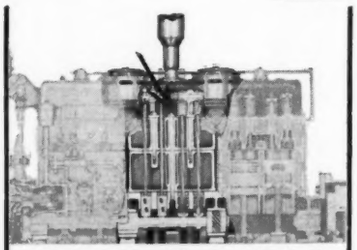
1. Ease of maintenance and low cost emergency service because paired cylinder blocks, pistons, and rods can be removed as a unit by one man.
2. Prolonged time between overhauls by use of close-grain cast iron that provides best cylinder lubrication for reduced wear.
3. Less service due to minimum distortion as MM cylinder heads, cylinder blocks and crankcase are virtually strapped together by full-length steel studs anchored in the main bearing bulkheads. (Transmits combustion pressure to heavy crankcase that has extra depth below center line of crankshaft.)
4. Efficient operation obtained by uniform cylinder expansion . . . the result of controlled cooling and long oil-cooled cylinder wall skirts below ring travel area.
5. "New engine" performance at extremely nominal cost can be obtained right in the field without special tools using factory matched cylinder blocks, pistons, pins, and rings. (Blocks are dowelled to crankcase to assure bore is square with crankshaft and pistons are precision fit to bore . . . equivalent to a factory job.)
6. Lower initial cost stems from high production parts by casting cylinder blocks in pairs separate from the crankcase.



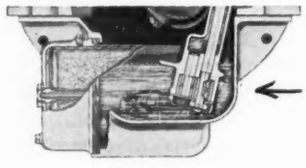
D605-6A equipped with Thermo-Clad base pan.



1. Cylinder head and block assembly shows coolant entrance at hottest point first and extra long skirt wall construction.



2. Close-up of how MM cylinder heads and blocks and crankcase are tied into a single rigid unit with long studs.



3. A D283 feature is extra large oil filter enclosed in base pan, floating-screen oil pump intake, and pump located in bottom of base pan.

Optional Thermo-clad water-blanketed base pans for all units also have oil filter included to give more effective filtering.

INDUSTRIAL MM MINNEAPOLIS-MOLINE MODERN MACHINERY DIVISION

MINNEAPOLIS-MOLINE

MINNEAPOLIS 1, MINNESOTA

For more facts, use Reader-Reply Card opposite page 18 and circle No. 577

BUILD With the BEST
DESLAURIERS
ROUND COLUMN FORMS
Sturdy • Straight • True
Since 1888—the standard in the construction industry...for lease only or, for lease-and-erection. Diameters; 12" to 56" and larger; any height. Two attractive capitals.
Write Today for FREE Folder or quotation
DesLauriers Column Mould Co., Inc.
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Chicago • Detroit • Oakland

For more facts, circle No. 578

After the interior of the building had been constructed, long braces were set between the structure and the sheeting and the excavation completed. Some of the braces are 12-inch H-beams and some are 20 × 20 timbers.

C&E Staff Photo

building consists of a series of round and square columns nominally spaced 27.5 × 31 feet. The 10½-inch concrete slab floor is strengthened by drop panels 10.33 feet square which transmit the load through column capitals to the columns. An unusual feature is the sloping floor arrangement which substantially makes the entire garage a system of ramps. Parking floors slope at grades up to about 1½ per cent, while the relatively short ramps have grades of 4 to 5 per cent. All spaces are arranged for angle parking from one-way driving aisles for convenience in operating the garage on a self-parking basis. If conditions warrant, the garage can be operated on an attendant-parking basis, increasing its capacity by about 200 cars.

For the convenience of the patrons, the garage is equipped with escalators, waiting rooms, and toilet facilities. Eight large fans located in the fan room below the lowest parking level force the air into the garage, drawing fresh air—which may be heated as it enters—from the air shafts. The fans have controllers which are sensitive to the concentration of carbon monoxide in the air, and as the percentage of CO increases, the fans gain speed to bring more fresh air into the building.

When the garage is completed this month, its roof will become a city park, with trees, shrubbery, and other plantings combined with a fountain, walks, and other facilities to make the area attractive. Exposed exterior faces of the building will be faced with Indiana and Missouri limestone.

Personnel

General superintendent for Swenson Construction Co. is Eric Swanstrom. Job superintendent for this project is Fred Montfort. Resident inspector on the job for Gentry & Voskamp, architects, is Claude Gunn. Pfuhl & Schideler did the structural engineering, and Howarth, Scott, & Kinney were the mechanical engineers. All of the firms are located in Kansas City. THE END

For more facts, circle No. 579 →

Plastic-coated wire rope

■ A new plastic-coated cable marketed under the name of Plasteel has been announced by Macwhyte Co., Kenosha, Wis. This cable is available as either a preformed galvanized-steel or stainless-steel wire rope. The thickness of the plastic coating varies with the diameter of the rope.

The manufacturer emphasizes that the flexibility of the rope is not adversely affected by the plastic coating. Moreover, the coating resists damage from sunlight and oxidation, and has excellent color stability. It is also resistant to most acids, bases, salts, oils, and greases, except hydrofluoric acid and methyl ethyl ketone.

The size of the cable is designated in terms of diameter before and after coating. For example, a 3/32 × 3/16-inch cable is a wire rope 3/32 inch in diameter before coating with plastic and 3/16 inch in diameter when finished. The cable is currently available in sizes 1/16 × ⅛ inch to ¼ × ⅜ inch, inclusive, in transparent green or opaque white coverings. Strengths range from 480 to 7,000 pounds.

For further information write to the company, or use the Request Card that is bound in at page 18 of this issue. Circle No. 661.

Let your ADAMS dealer show you

Every grader operator has wished at times that he could slow down his grader below standard first speed without slipping his clutch or reducing his engine power. Adams creeper gears are the answer. They permit operating speeds as low as 4/10 mph with engine wide open—¼ mph with engine cut back.

These extra-low speeds are advantageous in heavy scarifying of asphalt (as pictured above), in fine finishing, working in close quarters, grading among hidden rocks and roots, working mountain roads, etc. They gear the grader to the job. Tire slippage and shocks are reduced. They eliminate all operator tendency to slip the clutch, thus increasing clutch life.

Ask your local Adams dealer to show you a movie picturing the advantages of creeper gears and other Adams operating features—such as 8 standard forward speeds, 4 reverse speeds, dual braking system, and other advanced features.

A Product of Adams Division

LeTourneau-WESTINGHOUSE Company • Peoria, Illinois

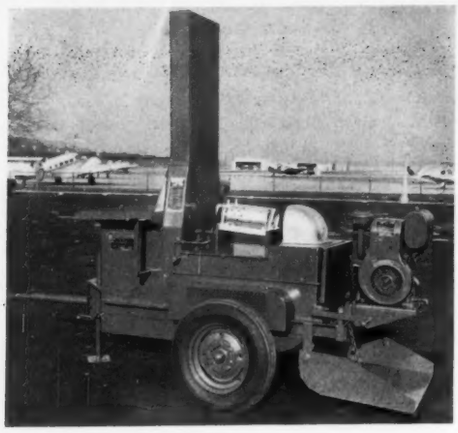
Subsidiary of Westinghouse Air Brake Company

ADAMS Creeper Gea
(Optional)
Provide speeds from ¼ to 1¾ m

MILES PER HOUR		1
CREEPER SPEEDS	1st	
	2nd	
	3rd	

Optional in new machines, Adams creep gears are also easily installed in any Ada Motor Grader with constant-mesh transm sion in the field. With them you get effective speed range of from ¼ to mph.—a correct speed for any and ev grading job.

Make your next motor grader an ADAMS



The new Littleford Model 400 Trail-O-Patcher is designed to do numerous maintenance, repair, and patching jobs daily, as well as resurfacing and base-material stabilization work.

Versatile bituminous mixer is trailer-mounted

■ A new Littleford Trail-O-Patcher bituminous mixer, the Model 400, can be towed behind a maintenance truck to handle many repair or patching jobs in a single day, or can be used in a yard to produce bituminous material as needed. The unit produces about 4 tons of hot mix per hour, depending on materials and moisture content, or 8 tons of cold mix.

The Model 400 Trail-O-Patcher is designed so that its 4-cubic-foot hopper can be conveniently filled with aggregate from the rear of a truck. The aggregate dumps into the twin pugmills through a quick-acting gate.

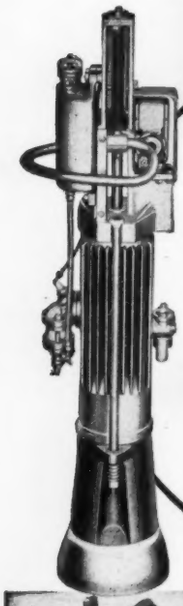
A special attachment for the Model 400 pumps bitumen into the pugmill from a kettle or supply tank. The bitumen may also be added while the aggregate is in the hopper.

Each half of the twin pugmill is 24 inches in diameter and 28 inches long. Replaceable ¼-inch abrasion-resistant hardened-steel liner plates protect the pugmill's wearing surfaces. Two Littleford 6-K torch-type burners fire directly into the pugmill, each providing heat up to 2,200 degrees F.

A Wisconsin 7-hp engine provides power for the pugmill paddles. A removable discharge pan holds 4 cubic feet of material. The mounting is a single-axle pneumatic-tire trailer.

For further information write to Littleford Bros., Inc., 457 E. Pearl St., Cincinnati 2, Ohio, or use the Request Card at page 18. Circle No. 619.

For the LOW BID on any job, figure your costs with BARCO



BARCO *Gasoline* **RAMMER**

BETTER BUILDING CONSTRUCTION! This job called for high degree compaction. The Barco Rammer did it at the rate of 1 to 1½ square yards per minute with 12" to 20" lifts and handled from 160 to 240 cu. yds. per 8 hour day.

SOIL COMPACTION is here to stay! *Specified Compaction* is now accepted practice on all modern construction projects. The BARCO RAMMER gives you specified compaction on these jobs at very little extra cost. Time after time, it has been proven that no other type of equipment can match BARCO PERFORMANCE:

- Better work! Easy to meet specifications calling for 95% to 97.5% (modified Proctor) compaction.
- Ideal for work in restricted areas: inside buildings, close to walls, culverts, and abutments—in trenches, ditches.
- Faster compaction! 20 to 30 cu. yds. per hour—day in and day out.
- One man operation! Completely self contained; no auxiliaries needed.
- Low operating cost. Low initial cost.
- SAFE! Simple to operate. Operators like Barco Rammers.

CUTS TRENCH COSTS! Using lifts up to 24", this Rammer finished backfill in 18" trench at a rate of 360 to 600 feet per hour for quick completion of job and no cost for additional backfill.

ASK FOR A DEMONSTRATION —See for yourself—ask for our nearest distributor to give you a demonstration. Catalog No. 621 on request.

BARCO *Manufacturing Co.*
518K Hough St., Barrington, Ill.
A Chicago Suburb

NOW! QUICK DELIVERY FROM FACTORY STOCK!

For more facts, use Reader-Reply Card opposite page 18 and circle No. 580

FLINTKOTE

Paving Products

for highways, streets, airfields, driveways

FLINTSEAL* . . . hot-poured rubber asphalt joint sealing compound for concrete pavements . . . bonds perfectly through all extremes of weather . . . prevents water infiltration much more effectively than old-style tar and asphalt fillers. (Formulated to meet Fed. Spec. SS-S-164.)

FLINTBINDER* C-2 . . . a specially compounded hot-mix tar-rubber binder for jet fuel resistant flexible pavement at airfields subjected to the effects of jet powered aircraft operations. Used extensively in U. S. Corps of Engineers tests for U. S. Air Force bases . . . both new construction and resurfacing.

FLINTSEAL* JFR . . . jet fuel resistant type of hot-poured compound. Used extensively by U. S. Air Force and U. S. Navy on cement concrete pavement serving jet aircraft. (Formulated to meet Fed. Spec. SS-S-00167.)

FLINTAR† . . . specially compounded coal tar emulsion for surface sealing bituminous pavements on airfields subjected to jet engine fuels, oils and greases . . . increases pavement life.

FLINTKOTE CPS . . . cold-poured type rubber asphalt joint sealer for effective sealing of concrete pavement . . . extruded into joints under pressure. (Formulated to meet Fed. Spec. SS-S-159, C.A.A.P-615 and others.)

ORTAR† D. S. EMULSION . . . for sealing asphalt paved surfaces of home driveways, bus stations, parking lots, streets and roads to provide oil resistance and protection from drippings of motor vehicles.

Write for complete technical data and literature

FLINTKOTE
Products for Industry

THE FLINTKOTE COMPANY, INDUSTRIAL PRODUCTS DIVISION
30 Rockefeller Plaza, New York 20, N. Y.

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In Toronto, Ontario: THE FLINTKOTE COMPANY OF CANADA, LTD.
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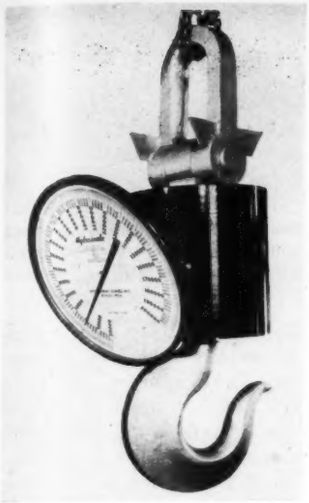
*REG. U. S. PAT. OFF. †TRADEMARK OF THE FLINTKOTE COMPANY

For more facts, use Reader-Reply Card opposite page 18 and circle No. 581



The new 100-ton-capacity Hydroway crane scale.

Heavy-tonnage crane scale

■ A new direct-reading automatic crane scale has a capacity ranging from 500 to 200,000 pounds. The specially-designed static, hydraulic-type scale is reported to be time saving and practical for weighing extremely heavy loads by crane suspension means.

Designed with alloy-steel cylinder and suspension parts, the unit has many safty features, including an ultimate load safety factor of 500 tons. The scale is equipped with tare adjustment so that net load readings can be taken directly from the dial.

For further information write to Hydroway Scales, Inc., 20624 W. Eight Mile Road, Detroit 19, Mich., or use the Request Card at page 18. Circle No. 623.

Air-entraining agent

■ Literature on Daralite, an air-entraining agent, is available from Dewey & Almy Chemical Co., Cambridge, Mass. Daralite is specifically designed for lightweight or insulating concretes made from extremely lightweight aggregates.

It generally produces yields in excess of 100 per cent even under adverse conditions, and usually develops the desired yield in such a short mixing time that particle breakdown does not occur. The agent works well with fly ash and mixes well with calcium-chloride solution for winter construction.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 665.

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TESTING ENGINEERS
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Foundation Investigations — Laboratory Analyses and Evaluation of Construction Materials — Soil Mechanics, Concrete and Asphalt Technology. Field Inspection and Consultation.

Special Investigations for Dams, Turnpikes and Airports.

710 North Brookfield, South Bend 28, Ind.

For more facts, circle No. 582

BUILT IN THE FORM of a riding sulky that can be readily attached to a power mower or tractor, the new Lawnaire cultivates, renovates, and aerates grass. Its sharp, straight or notched-edge knives penetrate the subsoil and open up the root zone to air, moisture, and fertilizer. The machine is expected to find use in improving the turf of planted highway dividers, and in landscaping work. For further information write to Soilaire Industries, Inc., 1208 Second Ave. S., Minneapolis 3, Minn., or use the Request Card at page 18. Circle No. 611.

Leave the Water ...in the PIT!

Even in Wet Digging...

HENDRIX means MAXIMUM bucket loads for more PROFITS

A TYPE FOR EVERY DIGGING PURPOSE

All Hendrix Buckets available without perforations

¼ to 40 Cubic Yards

Hendrix Lightweight Dragline Buckets

Every yard of material dug from a watery pit means a quicker profit on your operations. You can get this extra yardage by using a Hendrix Bucket. It's scientifically-arranged perforations make it a "natural" for wet digging . . . lets water go through . . . leaves more room inside for paydirt.

A FULL BUCKET EVERY TIME . . . and a minimum of maintenance cost, both in dollars spent and time consumed, will result in more profitable operations for you. Ask a man who uses a Hendrix . . . he knows!

HENDRIX MANUFACTURING CO., Inc.

MANSFIELD, LOUISIANA

For more facts, use Reader-Reply Card opposite page 18 and circle No. 583

CONVENTION CALENDAR

September 12–14 American Road Builders' Association
Third National Conference of County and Highway Officials, Greystone Hotel, Gatlinburg, Tenn. Ben F. Ostergren, ARBA, World Center Bldg., Washington 6, D. C.

September 29–30 Standards Engineers Society
Fourth Annual Meeting, Hotel Statler, Hartford, Conn. Arnold B. White, program chairman, SES, c/o Veeder-Root, Inc., Hartford, Conn.

October 2–5 American Public Works Association
Public Works Congress and Equipment Show, Hotel Schroeder, Milwaukee, Wis. D. F. Herrick, executive director, APWA, 1313 E. 60th St., Chicago 37, Ill.

October 2–8 International Road Federation
Second World Meeting, Food and Agricultural Organization Buildings, Rome, Italy. Robert O. Swain, executive director, IRF, 1023 Washington Bldg., Washington 5, D. C.

October 4–7 Ohio Short Course on Roadside Development
Short Course of Instruction, Departments of State Building, Columbus, Ohio. Wilbur J. Garmhausen, chief landscape architect, Ohio Department of Highways, Columbus, Ohio.

October 10–12 American Society of Lubrication Engineers and American Society of Mechanical Engineers
Second Annual Joint Lubricating Conference, Hotel Antlers, Indianapolis, Ind. William P. Youngclaus, Jr., adminsitrative secretary, ASLE, 84 Randolph St., Chicago, Ill.

October 14–15 National Society of Professional Engineers
Fall Meeting, Peabody Hotel, Memphis, Tenn. Mr. Lorin Allen, general chairman, NSPE, 65 McCall Place, Memphis, Tenn.

October 17–19 Southeastern Association of State Highway Officials
Meeting, Daniel Boone Hotel, Charleston, W. Va. William T. Brice, executive secretary, State Road Commission of West Virginia, Charleston, W. Va.

October 17–21 National Safety Council
Forty-third National Safety Congress and Exposition, Conrad Hilton Hotel, Chicago, Ill. R. L. Forney, secretary, NSC, 425 N. Michigan Ave., Chicago 11, Ill.

October 25–28 American Society of Civil Engineers
Annual Convention, Hotel Statler, New York, N. Y. Don P. Reynolds, assistant to secretary, ASCE, 33 W. 39th St., New York, N. Y.

October 27–28 National Slag Association
Thirty-eighth Annual Meeting, Grand Hotel, Point Clear, Mobile, Ala. E. W. Bauman, managing director, NSA, 613 Perpetual Bldg., Washington 4, D. C.

October 30–November 2 Wire Reinforcement Institute
Meeting, The Inn, Ponte Vedra, Fla. Frank B. Brown, managing director, WRI, 1049 National Press Bldg., Washington 4, D. C.

October 31–November 1 American Concrete Institute
Meeting, Atlanta Biltmore, Atlanta, Ga. William A. Maples, secretary-treasurer, ACI, 18263 W. McNichols Road, Detroit 19, Mich.

October 31–November 2 National Lubricating Grease Institute
Meeting, Edgewater Beach Hotel, Chicago, Ill. Harry F. Bennetts, executive secretary, NLGI, 4638 J. C. Nichols Parkway, Kansas City 12, Mo.

November 2–4 Virginia Highway Conference
Conference, Virginia Military Institute, Lexington, Va. R. P. Ellison, executive assistant, Department of Highways, 1221 E. Broad St., Richmond, Va.

November 14–16 American Concrete Pipe Association
Meeting, Chase Hotel, St. Louis, Mo. Howard F. Peckworth, managing director, ACPA, 228 N. LaSalle St., Chicago 1, Ill.

November 27–December 2 American Institute of Steel Construction
Annual Convention, Boca Raton Hotel, Boca Raton, Fla. L. Abbett Post, executive vice president, AISC, Inc., 101 Park Ave., New York 17, N. Y.

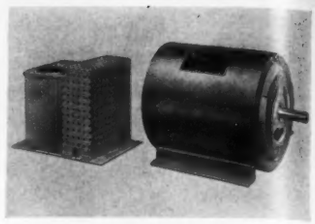
December 1–2 Mississippi Valley Flood Control Association
Meeting, Hotel Roosevelt, New Orleans, La. Bruce Tucker, executive vice president, MVFCA, 203 Hotel Peabody, Memphis, Tenn.

December 7–9 American Association of State Highway Officials
Meeting, Jung Hotel, New Orleans, La. J. A. Kinkead, reservations chairman, AASHO, Department of Highways, Baton Rouge, La.

Portable ac-power unit produces up to 10 kw

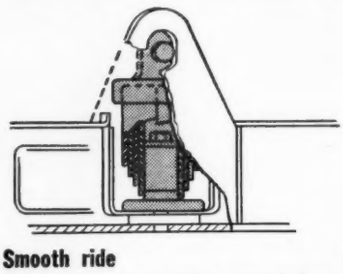
■ A new portable source of ac power delivering up to 10 kw at 110–220 volts is announced by Star-Kimble Motor Division, Miehle Printing Press & Mfg. Co., 200 Bloomfield Ave., Bloomfield, N. J. Utilizing as a prime mover the engine of the vehicle in which it is carried, the unit supplies alternating current at commercial voltages and frequencies, single or polyphase, and is said to greatly extend the use of power tools and motor-driven machinery in areas where there is no permanent power source.

The Mo-Bil-Ac reportedly produces sufficient output to operate pumps, hoists, welders, saws, and other equipment designed for standard ac voltages. Compact and lightweight, the unit employs a two-pole alternator which may be mounted under the vehicle hood and driven by a V-belt from a sheave on the crankshaft in front of the fan pulley, or by a power takeoff. The regulator is a static unit



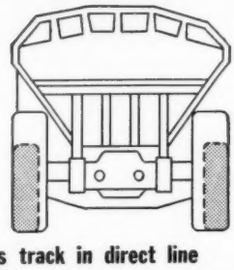
The new Mo-Bil-AC portable ac power unit consisting of a magnetic-amplifier-type regulator (left) and two-pole alternator.

Check all these important Dumptor®



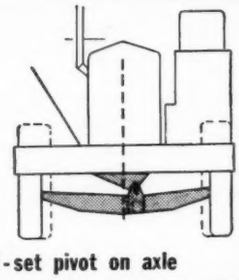
Smooth ride

Heavy, snubber-type spring is mounted between Dumptor main frame and the steering axle. Shock-absorbing action gives plenty of "cushion", takes jolts out of rough, off-road travel. Easy on operator and machine.



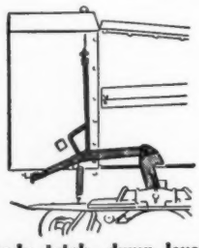
Tires track in direct line

Wider, heavier steering axle puts Dumptor steering wheels in direct line with big drive wheels. Tires track in the same path. There's less rolling resistance — better traction in soft ground and over rough haul roads.



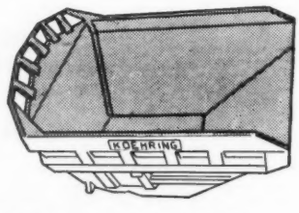
Off-set pivot on axle

Pivot point on steering axle is offset from center line 3¼" toward operator side of machine. There's no sag, even with unbalanced load. Steering axle oscillates 21°, keeps twisting strains out of main frame.



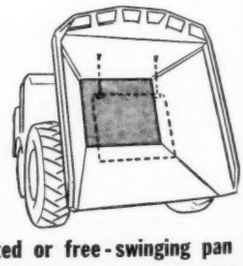
New body-latch, dump lever

Body latch for 1-second gravity dumping is simple, trouble-free. Latch is engaged by a single hook, mounted on the chassis frame. Dump lever is located inside the cab, in an easy-reach position at the operator's left.



Streamlined, all-steel body

Inside is free of bulges or ledges. Top edge is box-beam constructed. Sides, ends are ribbed with 5 and 8" channels. Double-plate bottom is lined with multiple steel beams. Note ridge bar added to rock-guard teeth.



Bolted or free-swinging pan

Heavy steel kick-out pan is ½" thick. Pan can be bolted to body floor for extra protection when loading rock. Remove bolts, and pan has free swinging kick-out action, breaks suction when dumping sticky loads.

of the magnetic-amplifier type with a selenium rectifier to provide alternator excitation. Measuring only 10×6×7 inches, the regulator has encapsulated windings for protection against moisture and vibration.

Regulation is very close and transient response of the system is such that when full load is applied, voltage recovers to full setting in one second or less.

Units rated at 3, 5, and 10 kw are in production and other ratings can be designed on order, according to the manufacturer.

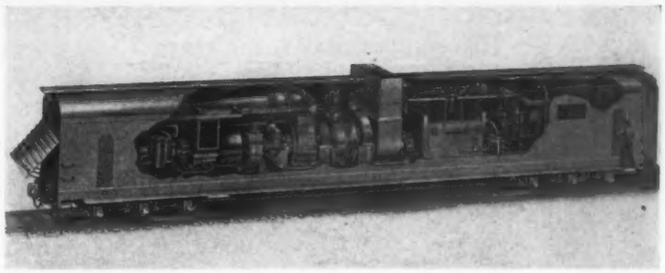
For further information write to the company, or use the Request Card at page 18. Circle No. 681.

Let's roll up our sleeves today and give to the Red Cross Blood Bank.

Mobile power plant generates 5,500 kw

■ A mobile power plant mounted in a single railroad car and capable of developing 5,500 kw of electrical power has been designed and built by Clark Bros. Co., Olean, N. Y. Although designed primarily as an emergency source of power for use in disasters or other power failures, the unit is expected to have application in large-scale construction work where a large amount of power must be generated at the job site.

The prime mover in the unit is a new open-cycle dual-shaft series-flow gas turbine which may also be operated with residual fuel oils. The turbine consists of an axial-flow compressor and an axial-flow turbine with two shafts. Power is developed by a two-pole synchronous generator driven directly at 3,600 rpm. An auxiliary diesel engine starts the turbine, brings it to sustaining speed, and then automatically disengages.



The Clark Turbo-Mobile power plant is a 5,500-kw power source contained in a railroad car. Openings in the car at the end (left) and top (center) are for cooling air intake and turbine exhaust, respectively.

The lubricating system is a common one for all equipment. Oil for the bearings and starting speed increaser gear is contained in a main 500-gallon tank. The fuel system is designed for operation with No. 2 diesel fuel oil, but only minor adjustments to the pressure regulators and valving are required for operation with residual fuels. The main fuel tank has a 500-gallon capacity.

The complete plant—including auxiliaries, controls, fuel storage and handling, auxiliary engine-driven generator, and station switchgear—is mounted in a custom-built railroad car suited to freight or passenger train use on standard AAR-gage track. Only fuel intake and outgoing power lines are required for installation, and the unit may be started and operated by one man.

For further information write to the company, or use the Request Card at page 18. Circle No. 617.

Literature on maintainer and heavy-duty grader

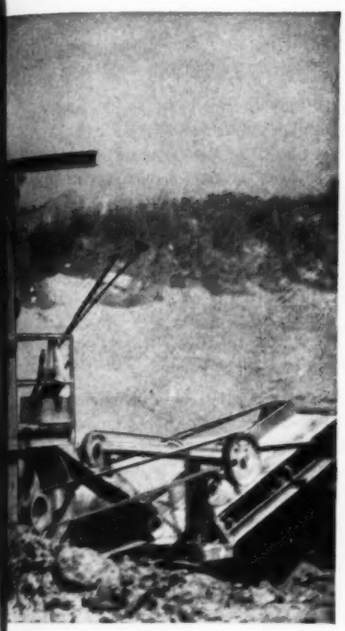
■ Bulletins on its new heavy-duty motor grader, the Model 5D-190, and on the Model M-52 maintainer are available from Huber-Warco Co., 202 N. Greenwood St., Marion, Ohio. Action photographs of the machines and diagrams of their more important components are included.

Illustrated features of the 195-hp grader include its high-arched frame, fully enclosed tandem case, hydraulic booster steering, easy-to-reach controls, four-wheel brakes, high axle clearance, power-sliding moldboard, torque converter, retractable scarifier, power unit, and final drive. A special section details the machine's cab-controlled 90-degree blade movement.

Each of the Model M-52 maintainer's nine hydraulically controlled attachments is described in detail with photos, specifications, and basic information on its uses and features. These attachments include the lift-loader, backfilling blade, bulldozer, broom, side dozer, patch roller, highway mower, snowplow, and berm leveler. Optional features such as the cab, scarifier, and canopy top also are described.

Both bulletins include information on the complete line of Huber-Warco road-building machinery.

To obtain Bulletin HWG-508 on the new motor grader, or Bulletin HWM-512 on the maintainer write to the company, or use the Request Card at page 18. Circle No. 700.



advantages

Take another look at the latest-model Koehring 6-yard Dumptor shown here. It has some important features worth checking . . .

Notice how heavy snubber-spring on steering axle cushions road shocks, yet retains Dumptor's unique advantage of no spring maintenance. There are no leaf springs. Big shock absorbing drive tires eliminate need for springs on drive axle. Alignment of drive wheels with steering wheels adds to efficiency of no-turn shuttle hauling — another basic Dumptor advantage.

Instant gravity-dumping is controlled by simple body latch and new dump lever arrangement. Notice, too, the new streamlined all-steel body. Even with all this heavy-duty strength, Dumptor still has more than 6 h.p. for every ton of loaded weight — accelerates fast, climbs 24% grades fully loaded. See your Koehring distributor for more facts.

KOEHRING COMPANY

Milwaukee 16, Wisconsin

Subsidiaries:
JOHNSON • PARSONS
KWIK-MIX

Johnson 50 to 125-yd. Roadbuilders plants

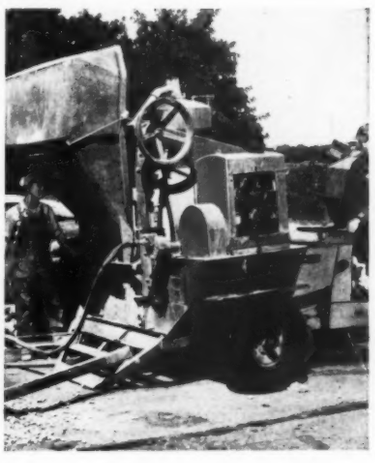
Flexible All-Welded Roadbuilders Bin gives you a portable batch plant for 2, 3 or 4 aggregates, or converts to transit-mix (shown) or central-mix plant for bulk cement and 2 or 3 aggregates. Can be equipped with 1 or 2 multiple material Hi-Speed Batchers, size 34 Roadbuilders Batcher, or truck-mixer charging batcher in 2 to 5 cu. yd. sizes. Bin available with 2, 3 or 4 compartments, 50 to 125 cu. yds. Also: silos, elevators, buckets.

C. S. JOHNSON • Champaign, Ill.
(Koehring Subsidiary)

7-second discharge with Kwik-Mix 11-S

Saving important seconds on every batch of concrete, tilted Flow-Line Discharge Chute pours full 12.1 cu. ft. batch in 7 seconds. Kwik-Mix 11-S Dandie® also has side or end discharge, 2 or 4 wheels, and special tower attachment. Other sizes: 3½-S to 16-S. Also check Kwik-Mix bituminous, tilt and non-tilt plaster-mortar mixers . . . and Moto-Bug® (power wheelbarrow) shown here. Ask your Kwik-Mix distributor for all facts.

KWIK-MIX • Milwaukee, Wis.
(Koehring Subsidiary)



25 feet per minute with 150 Trenchliner®

On drainage, irrigation and utility trenching, 150 wheel-type Trenchliner digs 16 to 26 inches wide, at depths to 5¾ feet. Hydraulic wheel-hoist maintains close grade tolerance. 30 digging feeds range from 12 inches to 25 feet per minute. Has square or round-bottom buckets; gumbo lips or "Tap-In" teeth; 16 or 12-inch crawlers; gas or diesel power. Tile box and chute optional. Parsons line includes 5 other models, all sizes and types.

PARSONS • Newton, Iowa
(Koehring Subsidiary)

T70

For more facts, use Reader-Reply Card opposite page 18 and circle No. 584

"BERG" CONCRETE SURFACERS

FOR BRIDGES, DAMS, CULVERTS, HIGHWAYS, FLOORS, WALLS, AIRPORT RUNWAYS, AND OTHER APPLICATIONS

Models H-8 and H-10

Portable Model A

"BERG" for Quality Work at Low Cost

MODEL A. Lightweight, electric powered unit . . . suspends from operator's shoulder. Interchangeable heads and attachments for surfacing concrete buildings, bridges, dams, walls, culverts, etc. *MODELS H-8 and H-10.* One-man gasoline engine powered units for surfacing concrete highways, streets, floors, airport runways. Includes exclusive power take-off for attaching "BERG" flexible shaft equipment for surfacing bridges, walls, etc. Write today for descriptive literature on machines and attachments.

THE CONCRETE SURFACING MACHINERY COMPANY
4665-69 Spring Grove Ave., Cincinnati 32, Ohio

For more facts, use Reader-Reply Card opposite page 18 and circle No. 585

Moments like THIS can help reduce insurance costs on jobs like THIS

View of construction of eight of the piers that will support the New York Thruway Bridge nearing completion across the Hudson River between South Nyack, New York and Tarrytown. Merritt-Chapman & Scott Corporation, Contractor, use AJAX Cups and drinking water equipment on this job.

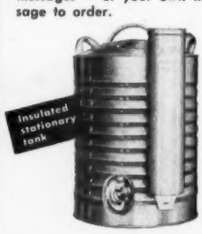
Several times a day – at moments when he is relaxed, receptive, ready to read–crisp, clean AJAX Cups put their imprinted safety messages right in this worker's hands.

And safety messages *that get read*, says the National Safety Council, definitely help reduce accidents. Fewer accidents mean lower insurance costs . . . can even spell the difference between profit and loss on a job. Why not put AJAX to work in *your* accident prevention program?

A TYPICAL EXAMPLE
(Actual case history from insurance company files)

One year Contractor B paid insurance premiums of $16,165. The next year his payments totalled only $14,286. Yet his base manual rate for the second year actually was nearly $2000 *higher* than the first. He saved that, and $1869 more, because an active accident prevention program earned him a substantial credit on his second year premium.

AJAX® CUPS and Drinking Water Tanks deliver fresh water to workers — mean less time lost on the job. AJAX Cups and new all-size Dispenser are also ideal for stationary tanks, barrels, pipeline faucets. 4 oz., 6 oz., and 7 oz. sizes packed imprinted with assorted stock safety messages — or your own message to order.



GET THE FULL STORY—Write us today for this new folder which gives full details on imprinted AJAX Cups and equipment.

United States Envelope Company

General Offices: • Springfield 2, Mass.

C-3C

15 DIVISIONS FROM COAST TO COAST

For more facts, use Reader-Reply Card opposite page 18 and circle No. 586

Concrete, asphalt paving mode

New work and rehabilitation on aprons, taxiways, and hardstands are part of improvement program at Air Force facility

A Southwest 50-ton pneumatic-tire compactor rolls over subbase material during grading work at Travis Air Force Base. *Official USAF Photo*

By the end of the year, more than 170,000 cubic yards of portland-cement concrete and 30,000 tons of asphaltic concrete paving will have been put down for two new taxiways, rehabilitation of three others, three new aprons, and six new hardstands as part of a $5 million improvement program at Travis Air Force Base, Fairfield, Calif., one of the most important military installations on the West Coast.

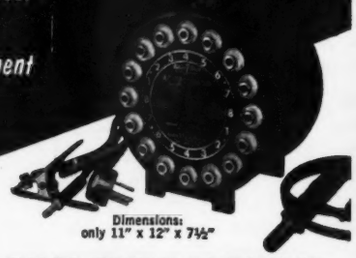
This paving job, being done by a joint venture composed of Parish Bros., Benecia, Calif.; Harms Bros., Sacramento, Calif.; and Gordon H. Ball, Danville, Calif.; was started in April and is scheduled to be finished by mid-January of 1956.

Other impressive totals in the contract call for 300,000 cubic yards of excavation in the alluvial silt and black clay at the base, 95,000 cubic yards of imported borrow, 115,000 cubic yards of select-material base course, and 60,000 tons of stabilized aggregate base course. More than half a million dollars worth of airfield lighting and drainage work being done includes moving and replacing of runway lights and provision for storm drainage.

Heavier loads

Travis, an aerial port of embarkation and debarkation, accommodates the long-range bombers of the Strategic Air Command, the jet-fighter aircraft of the Air Defense Command, and passenger and cargo planes operated by the Military Air Transport Service. Because of this triple service, paving at the field is being brought up to date to handle heavier

ANNOUNCING . . . The most revolutionary achievement in ARC WELDING equipment in years!



BREN-WELD MODEL 200 AW

Dimensions: only 11" x 12" x 7½"

Weighs only 65 lbs.— Carry it to the job!

Patent Pending

FIRST TRULY PORTABLE 200 AMP. OUTPUT ARC WELDER

OBSOLETES ALL OTHER WELDERS OF COMPARABLE RATING

List Price $169.50 F.O.B. Long Island City, N. Y.

Sensational new transformer development produces far more power to pound! The BREN/WELD does work of conventional welders 4 or 5 times its size and weight . . . Actually delivers up to 250 amps at reduced duty cycle.

Simple to use, fully guaranteed, it operates on 110/220 volts AC, 50/60 cycles; handles electrodes from 3/64" to 5/32". Has adjustable arc voltage for different arc characteristics. Ideal for plant production and maintenance, for construction work, railroads, on the farm or home.

See your dealer or write direct for details of free trial offer!

24 hour delivery from stock!

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Manufactured by BRENNEN, BUCCI & WEBER, INC. New York City

SALES DIVISION
KASSON DIE & MOTOR CORPORATION
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32-14 NORTHERN BOULEVARD, LONG ISLAND CITY 1, N. Y.

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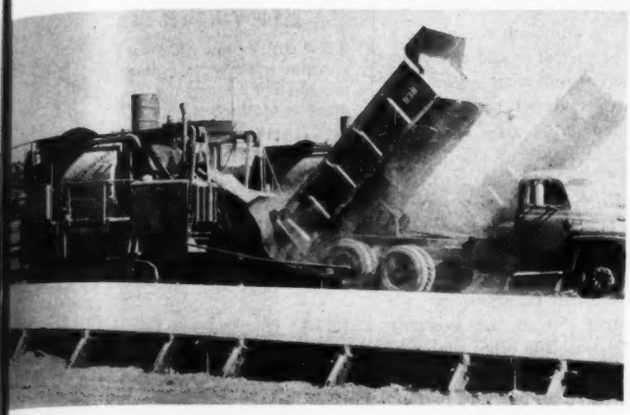
ving modernize multipurpose base



Five-compartment batch trucks dump into the skips of Koehring Twin-batch pavers. *Official USAF Photo*

loads and jet aircraft. All pavement has been designed for 400,000-pound gross loading, which is greater than the plane-load design at many air force installations and in sharp contrast to the 65,000-pound maximum of 12 years ago. Completion of the runway-taxiway-parking system program will enable the field to accommodate any aircraft now in use or in the planning stage.

In addition to handling heavy loads, the pavement must be resistant to jet fuels and jet blasts. Portland-cement concrete—is being used on all taxiways and aprons. Both will consist of 16 inches of surfacing on 6 inches of select-material base course and 6 inches of compacted subgrade.

Current paving is part of a continuing program being done by the South Pacific Region of the Air Force at bases in California, Arizona, Utah, Nevada, and several islands in the Pacific to bring airfield strips up to date. Under this program, a runway at Travis which had been built in 1943 and had since deteriorated from normal usage was lengthened, widened, and strengthened at a cost of $2,500,000. All sections that were breaking up were removed and replaced with 11 inches of select base course, 6 inches of stabilized-aggregate base course, and 4 inches of asphaltic concrete, then topped with a 2½-inch binder course and a 1½-inch wearing course. Portland-cement concrete was placed on 1,000 feet of the runway at each end. With completion of this work, allied paving is being done this summer on taxiways and aprons.

(Continued on next page)

With all 4 primary contractors using Jersey Spreaders to lay both the rock base and fine cushion on West Virginia's new 88 mile Turnpike, as much as 22,000 tons were laid in a single day! . . . easily attached to any tractor, Jersey Spreaders have proven the fast, economical way to spread material.

Write now for complete information and illustrated literature.

JERSEY SPREADER

TRACTOR SPREADER COMPANY

MANUFACTURERS OF THE JERSEY SPREADER

HASBROUCK HEIGHTS, NEW JERSEY

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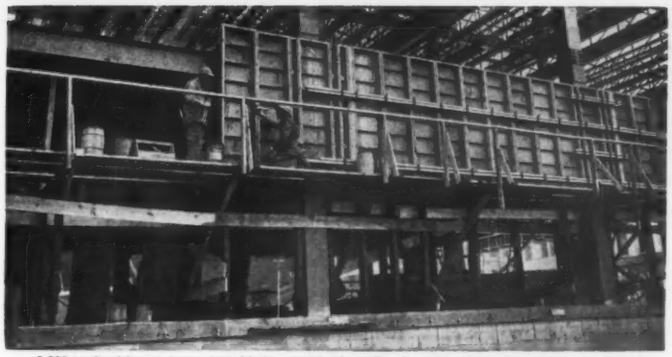


9,000 sq. ft. of Symons Forms reused 12 times on this job. William Baumeister Const. Co., St. Paul, Gen. Cont.

Spandrel Beam Forming Cost Cut 2/3 with Symons Forms

Because of the efficient combination of Symons forming, shoring and scaffolding methods, the contractor was able to cut his estimated cost by two-thirds on the $2,000,000 home office building of the Minnesota Mutual Life Insurance Company of St. Paul, Minnesota.

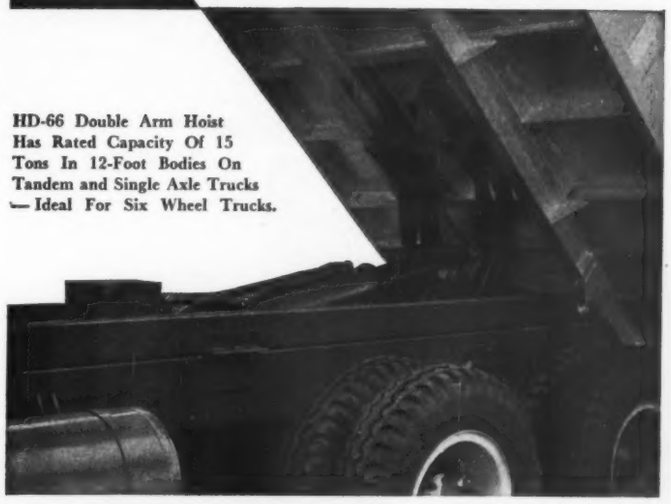
In addition to savings in labor cost, considerable time was saved in forming the Spandrel Beams of this 9-story building. The adaptability of Symons Shores with their safe "T" heads speeded the forming and scaffolding work. 2 x 8 ft. Symons Steel Rib forms were used to frame 56,000 square feet of Spandrel Beams. Symons Shores were used throughout in beam construction. All foundation walls are 16 feet in height.

Send for our Catalog F-10 which gives complete information on Symons Forming. Symons Clamp & Mfg. Co., 4251 Diversey Avenue, Dept. I-5, Chicago 39, Illinois.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 590

Now!

Handle Extra Heavy Payloads with the MARION TWIN 66 HOIST



HD-66 Double Arm Hoist Has Rated Capacity Of 15 Tons In 12-Foot Bodies On Tandem and Single Axle Trucks — Ideal For Six Wheel Trucks.

Extra Profit Features *that Count*

- Low oil pressure operation for smooth lifts without pressure surges.
- Exclusive equalizing double-arm lift hoist provides outstanding performance.
- Rugged, heavy duty pump provides faster dumping cycle.
- Class 12 HABMA rating of 15 tons.
- Economical to operate . . . compact . . . dependable for long life operation.

"Designed on the Job"

MARION BODIES AND HOISTS

MARION METAL PRODUCTS CO., MARION, OHIO, U. S. A.

A complete line of standard and special hydraulic hoists and dump bodies to fit every need.

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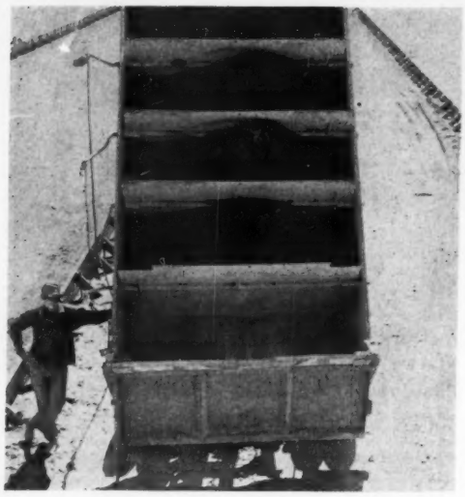


One of the batch trucks makes ready to unload. The goggles and protective respirator worn by the workman are standard equipment for all personnel on the job.
Official USAF Photo

(Continued from preceding page)

Enlarging taxiways, aprons

The three aprons under construction are a 325×2,315-foot operational apron, a 265×915-foot warmup apron, and a 265×635-foot access apron. These have a minimum grade of 0.5 per cent and 50-foot shoulders graded to an 0.655 per cent slope.

The three taxiways being rebuilt measure 150×5,700 feet, 75×2,900 feet, and 150×7,300 feet. On the latter taxiway, the widest of the three, 18,000 cubic yards of deteriorated pavement is being removed, crushed, and re-used as imported borrow for the subbase.

Of the two new taxiways, one is a 75×1,862-foot slab at the southerly end of the field. The other measures 75×3,100 feet, and will have six new 225-foot-long stub taxiways linking it with six new concrete hardstands for unloading aircraft. These hardstands will be 240 feet in diameter and have 50-foot shoulders.

All taxiways have a 1½ per cent transverse slope from the center crown. On each side of the slabs, 50-foot-wide sections are being graded to the same slope and paved with 2 inches of asphalt surfacing over 6 inches of stabilized base course and 11 inches of select base-course material.

Concrete paving

A Noble batch plant set up at the south end of the field is supplying an average of 1,700 cubic yards of concrete daily for the paving crews, which work a 10-hour shift during the summer months. Cement is being delivered to Travis by two suppliers.

Twelve trucks haul batches to the Koehring Twinbatch paver, which is laying the pavement in 25-foot-wide strips. Odd lanes are being paved first, with steel forms being used on these lanes. When concrete has cured sufficiently, all intermediate lanes are paved by equipment riding on previously placed concrete.

Following the Koehring machine in the paving lineup are a concrete spreader, mechanical transverse finishing machine, and longitudinal finisher. Curing compound is applied to the concrete by a pressure machine.

From 8 to 10 hours after concrete has been placed, depending on weather conditions, contraction joints are cut in the pavement by a self-propelled saw mounted on rubber-tired wheels. The saw uses four rotary blades to make ¼-inch-wide and 5½-inch-deep cuts. Joints are being filled with a jet-fuel-resistant tar-rubber compound, applied through a nozzle arrangement that injects the material into the bottom of the cut under pressure.

Personnel

The $5 million paving project at Travis is part of a $34 million program started this year by the South Pacific Region, and which in turn is part of a continuing program which has cost $43 million since 1951.

A. F. Krull is project engineer at

(Concluded on next page, Col. 1)

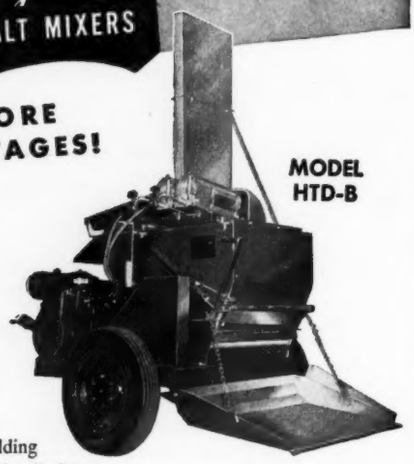
Often Copied but Never Matched

Leaders for many years, McConnaughay Asphalt Mixers have many outstanding features which are often copied..."but the complete machine has never been matched for versatility and all-around performance," said a long-time user. No other mixers can do so many things so well. Details and specifications (available on request) will show you why.

MODEL HTD-500

McConnaughay MULTI-PUG ASPHALT MIXERS

OFFER MORE ADVANTAGES!



MODEL HTD-B

McConnaughay Mixers are the result of more than *25 years' active experience* in building mixing equipment and in all phases of the paving industry. Extensive laboratory and field testing assure buyers that these mixers will do the job in practice as well as in theory. Hundreds of the two mixers illustrated are *in active service in 46 States, Alaska, Canada, South America, Europe and Africa.* Designed for fast, economical operation in any climate in any season... they do the job wherever located. That's why customers are our best salesmen. Write for name of user nearest you.

ASPHALT EQUIPMENT CO., INC.
3929 Buell Drive, Fort Wayne, Indiana
National distributors for K. E. McConnaughay, Lafayette, Ind.
For more facts, use Reader-Reply Card opposite page 18 and circle No. 591

MATERIALS HANDLING EFFICIENCY UP ...COSTS DOWN WITH THE Sasgen LIFTAMATIC

a low cost, mobile, automatic elevator with remote control and top and bottom limit stops for platform.

LIFTS 1200 LB. LOAD TO 110 FT.

7-cu. ft. auto-dump bucket.
Side or straight-thru unloading platform.
Handles bulk or unitized materials.
Interchangeable 5 and 10' extensions.
Gas or electric powered.

Ideal equipment for any lifting over shoulder height.

SOME EXCLUSIVE TERRITORIES STILL OPEN—write for information

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CAPACITY TO 600 TONS

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The Nu-Danco salamander.

Salamander features double burning action

■ A smokeless type of salamander said to burn less than a gallon of fuel per hour while producing 175,000 Btu has been announced by C. R. Daniels, Inc. Daniels, Md.

The principal feature of this equipment is a specially designed heat circulator. Unburned material and partially-consumed gases rise up and out of the top of this circulator, then are down-drafted back and up again through the flames. Smoke, soot, fumes, gases and unburned material are forced through the fire, resulting in a high operating efficiency and a low fuel cost per hour. Smoke is eliminated because it is consumed in the heart of the heat core. The Nu-Danco salamander is of heavy-gage galvanized steel.

For further information write to the company, or use the Request Card at page 18. Circle No. 672.

Cement-pipe cutter

■ A descriptive sheet available on request includes parts and price lists on an improved and lighter model of the Spring Load asbestos-cement pipe cutter.

The one-man pipe cutter is reported to make a clean cut within 1 inch of the end of any asbestos-cement pipe.

To obtain this literature write to Spring Load Mfg. Corp., 3610 First Ave. S., Seattle 4, Wash., or use the Request Card at page 18. Circle No. 609.

(*Continued from preceding page*)

Travis. The South Pacific Division, U. S. Army Corps of Engineers, is handling design work and contracting for the job, and is headed by Col. William F. Cassidy. Col. William F. Ely heads the Sacramento District, which is directing the work for the division. Col. Edwin M. Eads is in charge of the office of the Air Force Installations Representative, South Pacific Region, which provides design criteria, and site plans, and which monitors the work for the Air Force.

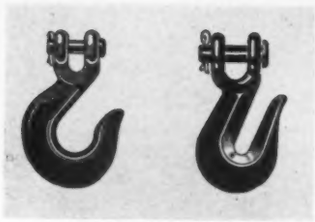
THE END

New sizes added to line of high-strength hooks

■ Three new sizes of shackle-chain slip hooks and one additional size of grab hook have been added to the line of Big Orange products manufactured by Midland Industries, Inc., 910 Second Ave. S. W., Cedar Rapids, Iowa.

Big Orange slip hooks are now available for ¼, 5/16, ⅜, 7/16, and ½-inch chain sizes. Grab hooks are available for ¼, 5/16, ⅜, 7/16, ½, and 5/8-inch sizes. Both types of hook can be used with high-test chain for a variety of lifting and hoisting jobs, according to the manufacturer.

The company points out that because Big Orange hooks are easily



Midland Big Orange shackle-chain slip hooks.

attached to any welded link chain with screwdriver or pliers, and easily removed without cutting links, they eliminate the work of connecting links and cold shuts in the field. Important features claimed for these hooks include oversized shackle heads, extra-long hooks for added safety, and specially designed hook shapes for better grip and maximum strength. All these hooks are made of high-strength steel and have a rust-preventive coating.

For further information write to the company, or use the Request Card at page 18. Circle No. 704.

Midland Industries News

Ellis G. Cram has been elected president of Midland Industries, Inc., Cedar Rapids, Iowa, manufacturer of shackles, grab hooks, and crane hooks for construction use. Mr. Cram also retains his former duties as vice president and sales manager.

The former works manager, Richard Sahl, has been elected vice president of the company, and Mrs. Don M. McIntyre has become chairman of the board of directors.

GALION

14-20 TON

3 AXLE TANDEM ROLLER

The Galion 3-Axle Tandem Roller gives you a considerably smoother finish surface, and up to 60% greater tonnage of material compacted per day than with conventional tandems. You get faster and better compaction of joints and seams. Elimination of cross-rolling saves you time and money.

Other features include Galion ROLL-O-MATIC Torque Converter Drive . . . Synchronized hydraulic steering of twin guide rolls . . . Dual operating controls . . . Rugged straight-line spur gear final drive . . . Complete and easy accessibility of all operating parts. Write for literature.

*Utilizing a General Motors-Allison Torque Converter

ESTABLISHED GALION 1907

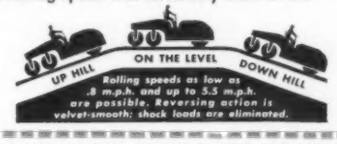
MAIL THIS COUPON TODAY

THE GALION IRON WORKS & MFG. CO.
GALION, OHIO, U.S.A.

ROLL-O-MATIC* TORQUE CONVERTER DRIVE IS STANDARD EQUIPMENT

GALION gives you the most effective and economical driving power obtainable. The ROLL-O-MATIC Torque Converter Drive differs from a fluid coupling drive. A fluid coupling transmission requires a manual gear shift mechanism, and the fluid coupling itself never multiplies engine power.

The Galion ROLL-O-MATIC Torque Converter Drive has no gear shift mechanism. Furthermore, it automatically MULTIPLIES the engine driving force by means of oil in motion instead of by transmission gears. It automatically APPLIES the driving force as the work demands, and automatically MAINTAINS desired roller speed. When the Governor Lever is moved to any selected rolling speed, this rolling speed will be closely maintained——


UP HILL
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Rolling speeds as low as .8 m.p.h. and up to 5.5 m.p.h. are possible. Reversing action is velvet-smooth; shock loads are eliminated.

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Dept. CE-95 Galion, Ohio, U.S.A.

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☐ 3-Axle Tandem ☐ Three-Wheel ☐ Trench
☐ 2-Axle Tandem ☐ Portable

PERSON _____

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STREET _____

CITY _____ STATE _____

For more facts, use Reader-Reply Card opposite page 18 and circle No. 594

The Danco Model HR mower made by the Danuser Machines Works, Tulsa, Okla.

Rotary mower mounts beneath wheel tractor

■ A rotary mower made by Danuser Machine Works, 2525 S. Sheridan Road, Tulsa, Okla., mounts beneath the chassis and between the wheels of rubber-tire tractors. The Model HR Danco rotary mower requires no manual adjustments, and the depth of cut is hydraulically controlled without stopping the tractor or mower. The machine comes in sizes to cut 55, 66, or 96-inch swaths and from 2 to 12 inches high.

Important from the point of view of maintenance is the fact that the mower can be quickly raised over any object through hydraulic control from the tractor seat. Special alloy blades of high-tensile steel with self-sharpening hard-surfaced cutting edges are reported to have a long service life.

Other features include the use of V-belt drive, with large adjustable Timken bearings mounted on heavy-duty spindles.

Because it is centered mounted, the Danco rotary mower makes it possible to do roadside maintenance work with less danger than usual to the operator. Since the tractor travels directly over the roadside being mowed, the driver is not as liable to injury from vehicles as he is when operating side-mounted mowers on tractors that must remain on the road.

For further information write to the company, or use the Request Card at page 18. Circle No. 632.

Detergent removes grease and soil from equipment

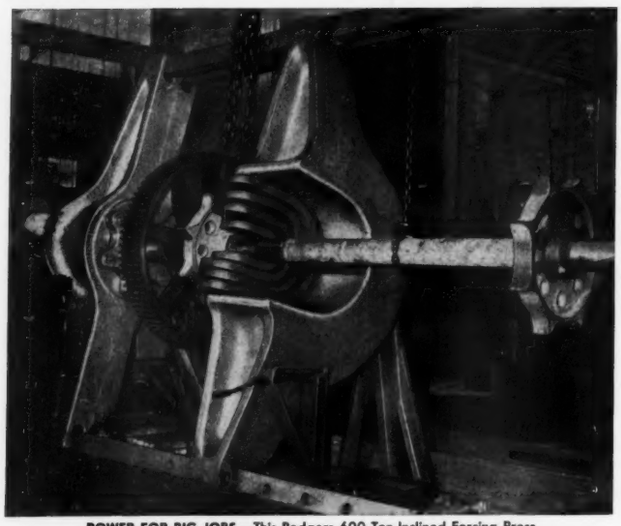
■ Two pounds per 25 gallons of Supersolv, a new detergent, in steam-cleaning equipment removes oil, grease, and accumulated soils quickly from tractors, trucks, and earth-moving equipment.

This patented granular-type detergent removes oily soils by displacement. Furthermore, once soils are removed they will not redeposit, even though the surface is not rinsed.

Supersolv, nontoxic, noncorrosive and nonflammable, can also be used to clean greasy concrete floors; concrete, brick, and other building faces; stationary and mobile engines; and power equipment of all kinds.

For further information write to Kelite Corp., 1250 N. Main St., Los Angeles 12, Calif., or use the Request Card that is bound in at page 18. Circle No. 652.

A MOUNTAIN of POWER



POWER FOR BIG JOBS—This Rodgers 600-Ton Inclined Forcing Press is forcing a large gear and sprocket from a mine machine shaft.

—or a touch of pressure

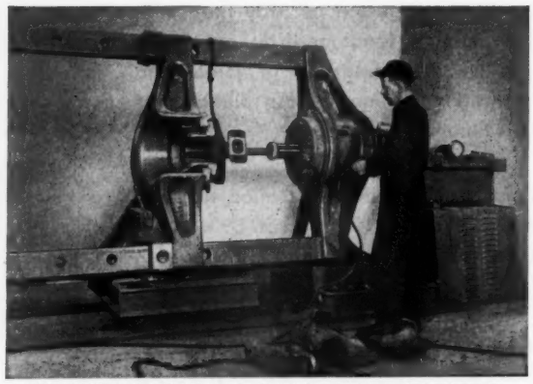
The heavy machines and equipment used in the great iron mining industry present a variety of problems when repair or maintenance is necessary. For this work the accurately controlled action of Rodgers Hydraulic Forcing Presses is a real time and work saver.

A Rodgers Forcing Press puts a mountain of power at your fingertips to force wheels, sprockets or gears from their shafts and for straightening, assembling, swedging or upsetting jobs. Operators also use the versatility, speed, power and positive control of a Rodgers Forcing Press to efficiently perform small pressing and forcing jobs with just a touch of pressure—tasks once done only on vertical shop presses!

you get both with RODGERS FORCING PRESSES

Rodgers vertical, horizontal and inclined forcing presses offer capacities from 100 to 600 tons . . . up to 9 feet between tension bars . . . up to 16 feet between ram and abutment . . . single or double acting cylinders with 13 or 26-inch ram travel (72-inch travel available) . . . electrically powered hydraulic pumps with selective, positive pressure adjustment and remote control . . . removable press cylinders that can be used in special jacking or pulling jobs . . . and many more features that assure you of dependable, long life operation—all fully described in this Rodgers Catalog Number 315A.

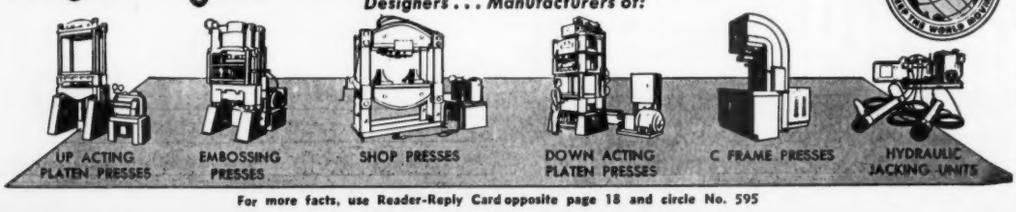
Write for it today!



LIGHT TOUCH FOR SMALL JOBS—This Rodgers 300-Ton Inclined Forcing Press is used on small as well as large equipment repairs. Here, a pin is being pressed out of a tractor idler support bracket.

Rodgers Hydraulic Inc. 7415 Walker Street, Minneapolis 16, Minn.

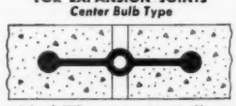
Designers . . . Manufacturers of:



For more facts, use Reader-Reply Card opposite page 18 and circle No. 595

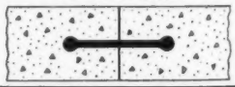
Servicised RUBBER WATERSTOP

FOR EXPANSION JOINTS
Center Bulb Type



Servicised Waterstop meets all standard specifications. Both types available in 6", 9" and 12" widths in any required length. Also — Tee's and Ell's.

FOR CONSTRUCTION JOINTS
Flat Dumbbell Type



FASTER, EASIER FIELD SPLICING with SERVICISED UNION

Union is hollow, with solid web through center to assure perfect centering of ends to be spliced. Ends of Waterstop are coated with rubber cement and Union slipped over one end and the other pushed in to centering web. This completes the splice. *Write for special Waterstop and Rubber Union Circular.*

SERVICISED PRODUCTS CORPORATION
6051 W. 65th ST., CHICAGO 38, ILL.

For more facts, circle No. 596

Morgen's adjustable scaffolding moves up mechanically with the job, placing a triple platform for masons, tenders, and materials at the best working level.

New tower and extensions for adjustable scaffolding

■ The adjustable masonry scaffolding made by Morgen Mfg. Co., Yankton, South Dak., is now being produced in 10-foot basic tower sections with 3 extensions of 2, 6, and 10 feet. One setup of the new extension scaffolding can be used for the construction of up to 23 feet of wall.

Equipped with a triple platform for masons, tenders, and materials, Morgen's adjustable scaffolding moves up mechanically with the job. The scaffolding has to be set up only once, there is no lost time for rescaffolding, and the mason is kept at the most productive working level at all times. In addition, the scaffolding has been designed for efficient operation with mechanized material-handling equipment.

For further information write to the company, or use the Request Card that is bound in at page 18. Circle No. 613.

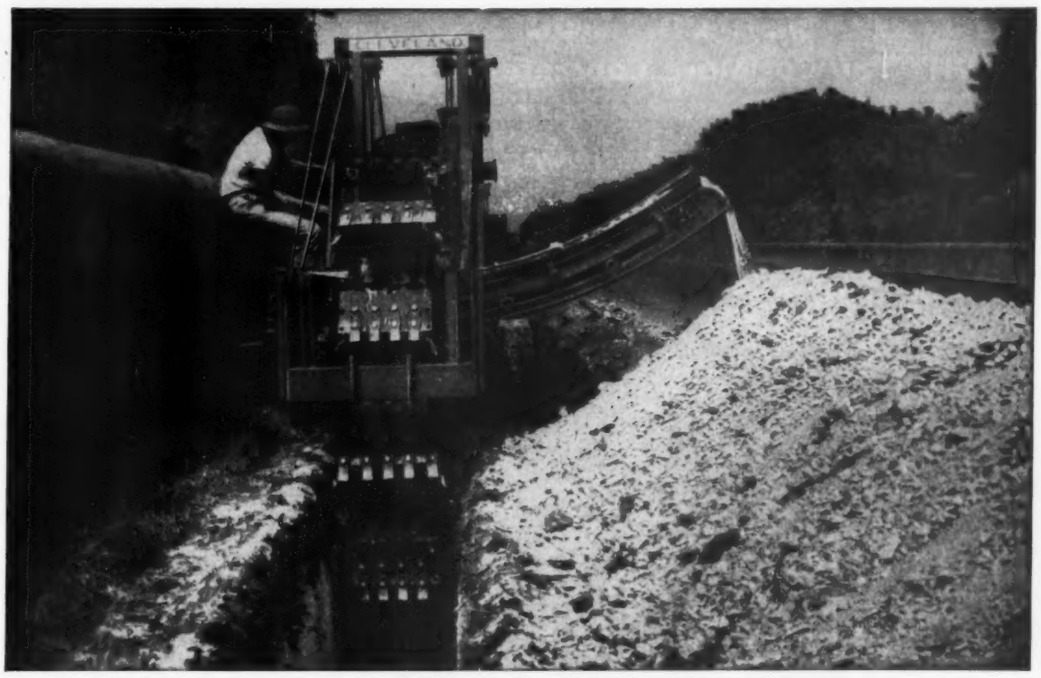
Trailer for transporting concrete-cutting machines

■ A small trailer especially designed for transporting concrete cutters has been announced by Tri-Line Co., 921–931 Carroll St., Racine, Wis. Consisting of a low bed and self-contained ramp, the trailer is reported to track perfectly at highway speeds on 16 × 450 pneumatic tires. Heavy chain tie-downs keep the concrete cutter securely in place.

A heavy-duty ball-and-socket tongue fits all standard trailer hitches. Hitch height is 15 to 28 inches. The trailer is 48 inches wide, 72 inches long, and weighs 245 pounds.

For further information write to the company, or use the Request Card at page 18. Circle No. 666.

"What do you mean, 'a heck of a time to show up on the job'—I just fell off the roof."



Double the Life of Earth-Moving Equipment *by* **Hard-Facing**

Trencher teeth stay sharper 2 to 3 times longer when hard-faced with HAYSTELLITE tungsten carbide rod. The hard-facing material protects the teeth from severe abrasion as they tear through rock, sand, shale, and clay at high speeds. HAYSTELLITE tungsten carbide has good shock resistance, too, and won't chip off under sudden impact.

On this job, the teeth were made of a tough vanadium steel and faced with a thin layer of HAYSTELLITE tube rod. The combination of a tough base metal and an extremely hard, wear-resistant surface helped to double the continuous service life of the trencher. Other earth-moving equipment subjected to abrasion and impact can be protected in the same way. Bull-dozer blades, dipper teeth, post-hole diggers, road disks and plows, will all operate for long periods of time, at low maintenance cost, when hard-faced with HAYSTELLITE tube rod.

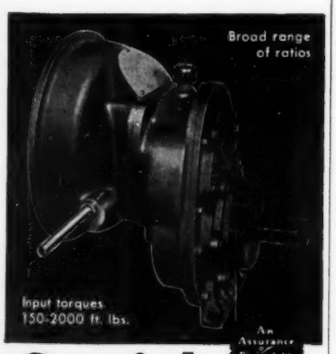
Your local dealer carries a complete line of HAYNES hard-facing alloys. He will be glad to recommend a HAYNES rod especially designed to resist abrasion, corrosion, impact, erosion or heat. Ask him for descriptive literature. If you don't know the location of your local dealer, write to Haynes Stellite Company, a Division of Union Carbide and Carbon Corporation, Kokomo, Indiana, for full details.

See... Your local Haynes Stellite Dealer

— or —

Write... to Haynes Stellite Company

"Haynes" and "Haystellite" are registered trade-marks of Union Carbide and Carbon Corporation.



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Special heavy-duty

- **Transmissions**
- **Reduction Units**
- **Mechanical Drives for Torque Converters**

Cotta Transmission Co., Rockford, Illinois

COTTA HEAVY-DUTY TRANSMISSIONS

"Engineered-to-order"

For more facts, circle No. 597

For more facts, use Reader-Reply Card opposite page 18 and circle No. 598

Pulling off the road momentarily, project manager Al Downey uses the General Electric mobile radio unit in his car to check a point with his grading superintendent many miles away. Seven G-E radio units are on this job. *C&E Staff Photo*

Mobile radio coordinates 50-mile railroad project

From his desk in a north Texas field office, project manager Al Downey discusses the effects of last night's rain with his grading superintendent, who is working with a spread of equipment more than 20 miles away. Within the next five minutes he gives instructions concerning a concrete pour to a bridge foreman who is almost an equal distance away in the opposite direction. While he sits at this desk or drives about the job in his automobile, Downey's voice can be heard over the full 50-mile length of this railroad-construction project near Dallas.

A General Electric mobile radio system makes this long-distance communication possible, and makes the entire operation a highly efficient one.

Downey assures you that it would be impossible to see the entire project in one day, "especially after a rain like we had last night. We would have to stick to the highways instead of going cross-country on the right-of-way." But weather or road conditions have little or no effect on the mobile radio system, and this project manager knows exactly what is going on throughout the job whether or not he visits each work area.

Project engineer J. P. Duggan is out on an early morning tour of inspection of some of the work areas. His voice comes in over the base-station loudspeaker: "I'm heading for bridge 23, but this road is pretty muddy. Be sure to keep that radio turned on. I may need a pull." If he does get stuck, the radio will get help to him in a hurry.

A few minutes later he is on the air again: "The pile-driving crew here on bridge 23 left their crane down in the hole. If the river rises much more it may top the dike and flood the machine. I suggest you call their office and pass on this information." The office manager picks up the phone, and in a few minutes this subcontractor has been warned of the possible danger.

Before many minutes pass, a long distance call for project engineer Duggan is received at the office. With the office manager acting as go-between and by the use of the radio, the engineer asks and answers the questions necessary to complete the call while he is still out there on a muddy access road many miles away. These are just a few examples to show why this mobile radio system is seldom silent during working hours. The project is the construction of nearly 50 miles of railroad to bring the Gulf, Colorado, and Santa Fe Railroad's main line from Sanger into Dallas, Texas. J. A. "Al" Downey is project manager for the general contractor, a joint venture of H. B. Zachry Co., San Antonio, Texas, and Morrison-Knudsen Co., Inc., Los Angeles, Calif. The $875,000 contract provides for grading, drainage, structures, and right-of-way fencing.

To keep the widely scattered work crews closely coordinated on the long project, the contractor installed a General Electric base station at the field office in Lewisville, Texas, near the mid-point of the job. Six mobile units were installed in the cars or pickups of the project manager, superintendents, and engineers.

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Model C-250 25 H. P. Optional Self-Propelled. A Clipper Model to fit every Budget. Priced from **$395**

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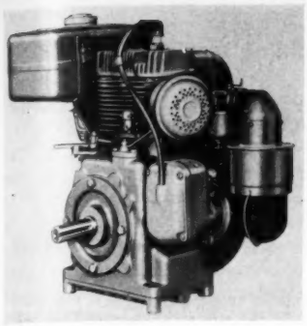
For more facts, use Reader-Reply Card opposite page 18 and circle No. 599



The Wisconsin Model ACN 4-cycle engine has a 5.6-hp maximum rating.

Latest 4-cycle engine rated at 2.3 to 5.6 hp

■ In the lightweight 4-cycle heavy-duty engine field, Wisconsin Motor Corp., 1910 S. 53rd St., Milwaukee 46, Wis., announces a new engine which is reported to represent a substantial increase in maximum horsepower over the Model ABN single-cylinder engine which it supersedes. The new Model ACN is the smallest engine in a current series of 12 models, rated from 5.6 to 36 horsepower, manufactured by the company.

The Model ACN has a piston displacement of 14.88 cubic inches, and is designed to operate within a speed range of 1,600 to 3,600 rpm. Output is from 2.3 to 5.6 horsepower, with a torque curve of 92 to 104 inch-pounds. Like all Wisconsin air-cooled engines, the Model ACN is equipped with tapered roller main bearings at both ends of the crankshaft and a high-tension outside magneto with impulse coupling which, it is claimed, permits easy starting at low cranking speeds. Positive lubrication is provided by a pump-circulated splash system and the piston is equipped with four rings.

The new engine can be supplied with various gear reductions, clutch assembly, electric starter and generator, or electric starter alone. It can be equipped to operate on gasoline, kerosene, butane, propane, or natural gas, with minimum carburetion changeover.

For further information write to the company, or use the Request Card at page 18. Circle No. 689.

Crushing, screening plant designed for fast set-up

■ New literature on a single-pass crushing and screening plant is available from Diamond Iron Works, Division of Goodman Mfg. Co., Halsted St. and 48th Place, Chicago 9, Ill. The Diamond series 100 plant is designed for frequent change of location with quick knockdown and fast setup features.

Four available models of the plant offer capacities of 30 to 90 tons per hour. A low hopper height makes the plant easy to load with a ½ or ⅜-cubic-yard shovel. The plant is equipped with a roller-bearing-type jaw crusher in 1016, 1020, 1024, and 1036 sizes.

To obtain catalog No. D-103 write to the company, or use the Request Card at page 18. Circle No. 640.

For more facts, circle No. 801→

Weather-resistant rubberized asphalts

■ A complete line of rubberized asphalts, recommended for use in waterproofing, highway surfacing, and joint sealing, has been developed by Berry Asphalt Co., P. O. Box 800, Magnolia, Ark. Combining the resiliency of rubber with the weather-resistant qualities of asphalt, the new compounds are the result of a blending process developed in Berry laboratories.

According to the manufacturer, live rubber is actually dissolved in the asphalt—and yet none of the resilient qualities of the rubber are sacrificed. The blend of the two substances reportedly remains pliable when cold and holds firm when hot, preventing a coating from becoming brittle and cracked in winter or runny and sticky in summer.

Because rubberized asphalt does not oxidize, the substance may be left exposed to the weather without the necessity of a gravel protective covering. The company also states that the material can be applied in damp or frosty weather, allowing a much longer application season.

When used in repairing pavement, the rubberized asphalt is said to flow smoothly into cracks and to level itself. Old surface materials are actually penetrated and enlivened by the rubberized compound, the manufacturer claims.

Rubberized asphalt is available in several forms: a roofing or paving compound, a liquid coating, or an aluminized liquid coating which has a metallic aluminum finish. A treated rubber additive is also available for on-the-job mixing with ordinary asphalt.

For further information write to the company, or use the Request Card that is bound in at page 18. Circle No. 693.

LIMA Type 803 equipped with a 24'-6" boom, 18'-0" dipper handle and 2½ cu. yd. dipper. The Type 803 has gained world-wide recognition for its dependable performance and big output at low operation and maintenance cost.

LIMA'S fast service cuts costly downtime

From coast-to-coast Lima service engineers, warehouses and distributors are prepared to give you that extra-fast service or parts delivery which can make all the difference between continuous, profitable production and high-cost idleness of equipment.

When you buy a LIMA you can depend on long, trouble-free service, thanks to those extra quality features built into every LIMA. But if trouble happens and you need help, you get it from Lima . . . fast!

COMPARE QUALITY! No other machine gives you as much as LIMA!

1. Piston ring type dirt seal rings and retainers in crawler rollers.
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3. Main machinery is placed well back of center of rotation.
4. Anti-friction bearings at every vital bearing point.
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7. Torque converter (optional on certain types).
8. Wherever you are, you can depend on skilled service and nearby warehouse stocks of parts to keep your LIMA on the job continuously.

COMPARE and you'll specify LIMA for shovels (to 6 yds.), cranes (to 110 tons) and draglines (variable). Smaller capacities available on rubber.

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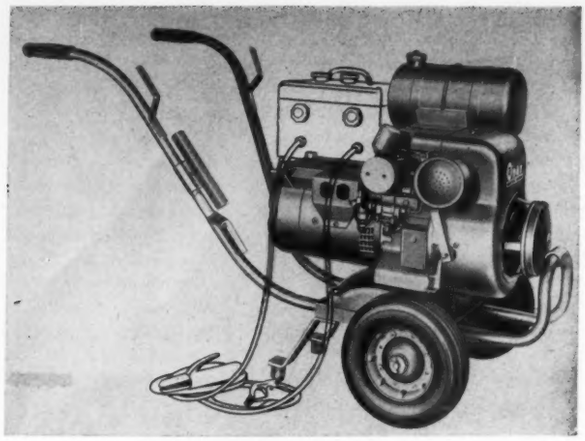


This new 2,500-watt Onan electric plant accommodates a 150-amp transformer-type welder.

New portable generator for welding service

■ A lightweight electric generating plant introduced by Onan is designed with special external modifications to operate any transformer-type ac welder with up to a 150-amp rating.

Designed as a portable source of ac power, the unit combines the new air-cooled Onan Model 205AJ-1M 2,500-watt 115-volt 60-cycle ac electric generating plant with any 150-amp transformer-type welder that the user wishes to add to make a versatile generator-welder.

Power for the 152-pound unit is supplied by an Onan-built single-cylinder 4-cycle air-cooled gasoline engine. The generator is an Onan-built 2-pole revolving armature, inherently voltage-regulated type, directly connected to the engine for permanent alignment. The unit is manually started with a pull rope; a recoil pull rope starter is obtainable.

This portable generator is available mounted on a lightweight, two-wheel dolly or on a welded tubular-steel carrying frame.

For further information write to D. W. Onan & Sons Inc., University Ave. S. E., Minneapolis 14, Minn., or use the Request Card at page 18. Circle No. 671.

Four-wheel-drive vehicles adopted for many jobs

■ Specialized attachments have made the Jeep a versatile and mobile source of power in the field, according to a booklet from Willys Motors, Inc., 1505 N. Cove Blvd., Toledo 1, Ohio.

Special equipment for the Jeep now includes a hydraulic lift, terracing blades, reversable-bucket scoop, and post-hole digger. Also available for the unit are mobile pumps, mobile air compressors, generators, and welders. Winches, a fork-lift loader, backhoe, offset angledozer, snow blades, rotary snowplow, and wreckers also increase the utility of the Jeep. A hydraulic dump body converts it to dump-truck service.

The Jeep carries up to 12 men or a half ton of cargo. It is available in two versions of the well known Universal Jeep, and also in a station-wagon model, a truck model, and a sedan delivery unit. Like the Jeep of World War II fame, the present four-wheel-drive vehicle will go just about anywhere.

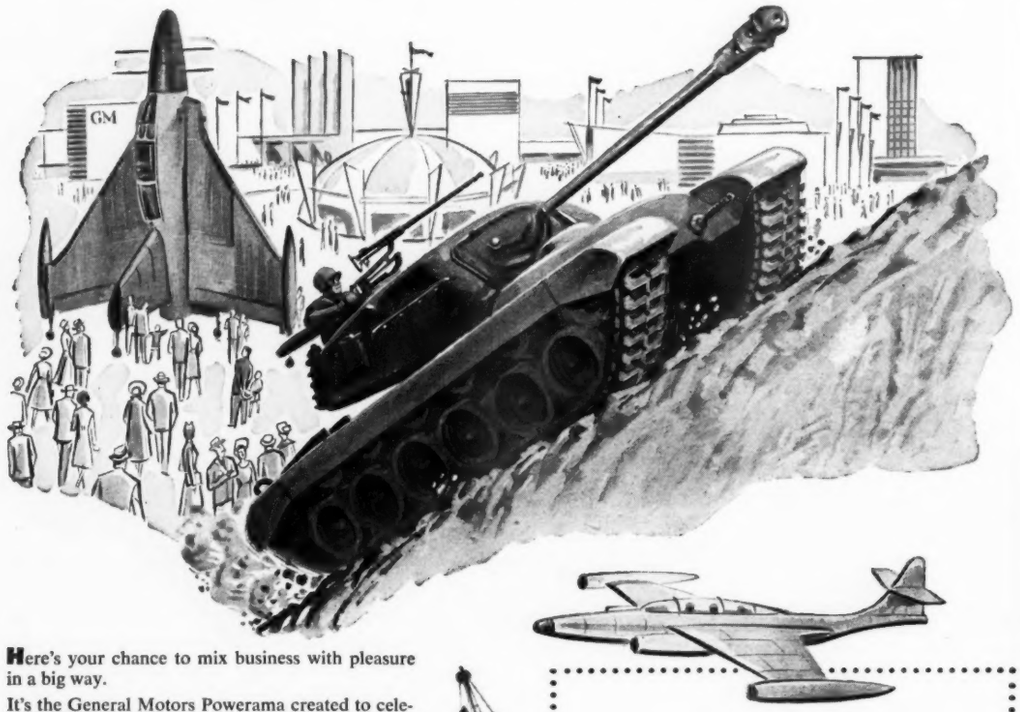
To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 625.

Don't miss it!

a World's Fair of Power

THE GENERAL MOTORS POWERAMA

Lake Shore—South, Chicago · August 31 through September 25



Here's your chance to mix business with pleasure in a big way.

It's the General Motors Powerama created to celebrate the building of GM's 100,000,000th Diesel horsepower—staged at a fabulous wonderland on Chicago's Lake Front.

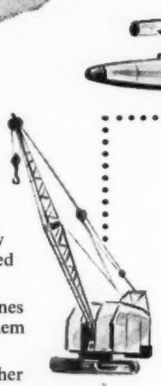
Here you'll see Allison TORQMATIC DRIVES smoothly transmitting Diesel engine power—see why these proved drives make any engine run better, more efficiently.

You'll see a wide range of TORQMATIC-equipped machines in action, watch them speed through their paces, see them change the face of the earth.

You'll watch TORQMATIC-equipped Army tanks and other military vehicles performing breath-taking maneuvers—see twin-jet Scorpions and a sensational VTO interceptor, both powered by Allison aircraft engines.

And here you'll see a brand-new idea in the world of entertainment—the first Technological Circus—"More Power to You"—an amazing combination of circus thrills—vehicular skills and big-time entertainment.

And best of all, *it's all free*. So bring the family—they'll enjoy it just as much as you.



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★ *Scores of Diesel-powered units at work*

GM TORQMATIC

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TORQMATIC DRIVES

Allison Division of General Motors, Indianapolis, Indiana

For more facts, use Reader-Reply Card opposite page 18 and circle No. 802

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for concrete construction
available on a
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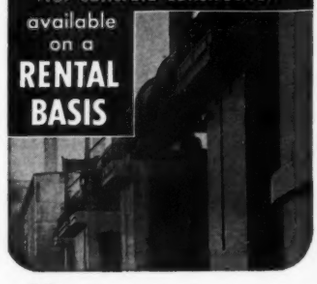

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For more facts, circle No. 803

Owatonna's Giant hydraulic puller.

New hydraulic puller has 100-ton capacity

■ Heavy-duty pulling power is the feature of the Giant 100-ton hydraulic industrial puller developed by the Owatonna Tool Co., 381 N. Cedar St., Owatonna, Minn. Powered by OTC's versatile new 100-ton Power-Twin hydraulic ram, the big triple-grip puller is designed to handle tough jobs on large-diameter wheels, sheaves, sprockets, and gears in heavy-equipment maintenance shops.

The jaws of the unit permit a 34½-inch reach for a maximum diameter of 48 inches, a 36½-inch reach for a maximum diameter of 36 inches, and a 38-inch reach for a maximum diameter of 24 inches. A 36-inch adjusting screw provides quick adjustment to the work and permits utilization of the full 5-inch-ram piston travel.

A new patented jaw adjustment in the puller is said to permit greater ease of handling. Similar to other OTC hydraulic rams, the 100-ton Power-Twin unit which operates this puller is easily removed and quickly adapted to countless other maintenance jobs in the shop or field, according to the manufacturer.

For further information write to the company, or use the Request Card at page 18. Circle No. 694.

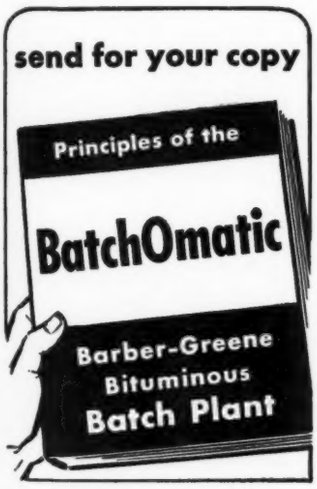
Line of dragline buckets

■ The Omaha line of dragline buckets is illustrated in a folder from Drake - Williams - Mount, 23rd and Hickory Sts., Omaha, Nebr.

The literature describes four types of buckets available. The LCR type is designed especially for levee and drainage work, while a featherweight model is offered for ordinary digging. A standard model is available for all-around duty, and a heavy-duty bucket delivers a large output in difficult digging.

Omaha dragline buckets are available in sizes from ¼-yard up.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 659.



Explains New
- aggregate measuring
- asphalt measuring
- Dyna-mix Pugmill
- other new principles

55-52-B

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For more facts, circle No. 804

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A PRODUCT OF THE COLORADO FUEL AND IRON CORPORATION

For more facts, use Reader-Reply Card opposite page 18 and circle No. 805

3149

Inert-gas-shielded arc-welding equipment

■ A new catalog featuring Aircomatic welding equipment has been released by Air Reduction Sales Co., 60 E. 42nd St., New York 17, N. Y. This equipment is used in Airco's inert-gas-shielded metal arc-welding process.

The booklet includes a discussion and illustrations of manual and automatic units along with accessory apparatus and welding wire.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 638.

The Super 33, newest McCulloch chain saw, weighs only 22 pounds.

Light chain saw has high cutting speed

■ Weighing only 22 pounds, a new McCulloch chain saw is suitable for all-around use by construction crews and maintenance men working in any terrain. At the same time the Super 33 model is reported to have more horsepower than previous comparable models and, consequently, a faster cutting speed.

Features designed for easy handling and low maintenance include a full wrap-around chrome-plated handle, improved accessibility for maintenance, increased cooling, and a new and improved sawdust and sprocket guard.

For further information write to McCulloch Motors Corp., 6101 W. Century Blvd., Los Angeles 45, Calif., or use the Request Card that is bound in at page 18 of this issue. Circle No. 610.

Power takeoff for engines in high horsepower range

■ The Twin Disc Clutch Co. has developed a new heavy-duty friction power takeoff designed especially to meet the requirements of engines in the 350 to 375 class, operating in the 1,800 rpm range.

Compact for its capacity, the new power takeoff accommodates an SAE No. 0 flywheel. With triple drive-plate construction, it has ample friction surfaces to withstand excessive heat. And with a solid driving-plate design, the new power takeoff can effectively handle the stress of higher rpm.

The pilot bearing of the new unit is composed of a single row of balls, operating in bearing races of double-row width. This provides accommodation for minor misalignment inherent in installations of this nature. Pilot bearings of this type also provide additional space for lubrication, which is more effectively retained by the double grease shield construction. Although this construction is usually referred to as "sealed for life," the clutch is drilled to provide for relubrication of the pilot bearing in the conventional manner.

Another feature is the use of spherical bearings, which permit angularity and are more resistant to overload or the destructive forces from heavy slide loads.

For further information write to Twin Disc Clutch Co., Racine, Wisc., or use the Request Card at page 18. Circle No. 628.

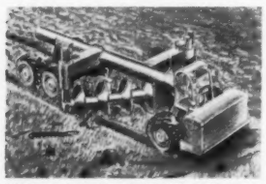
Now! Machines that 'Specialize' In Big Tract, Low Cost-per-Acre

LAND CLEARING

Tree Crusher. A 110-ton monster with steel-cleated rollers that crushes a broad swath of trees and undergrowth, compacting it for easy, in-place burning.

New Methods Quickly Clear All Types of Growth— Big Trees Pulled Out By Roots, or Cut Flush

Tree Crusher. A six-wheel, diesel-electric giant with enough tractive power to uproot medium size trees, take out stubborn stumps and deck big trees and stumps in higher windrows for burning.



Self-Powered Disc Plow. With 6-foot diameter, heavy steel discs it cuts up roots and stumps so they will rot out quickly. Breaks up newly-cleared land for cultivation.

Tree Saw for fast, flush-with-the-ground cutting. Saw blade is electrically powered and is controlled from operator's cab. Overhead boom directs tree's fall.

Tree Stinger pushes biggest trees out by the roots with its electrically powered, telescoping boom. Highly effective where big trees grow.

Powerful LeTourneau Land Clearing Equipment has been developed, tested and proved-by-use on all kinds of clearing jobs — including forest, brush, and lowland vegetation — where job specifications varied from flush-cut stumps to root systems completely removed.

Diesel-electric power drives every working part of these big special-purpose machines. Rubber-tired *Electric Wheels* drive and brake individually with powerful electric motors and gear reductions inside their rims — or big steel rollers revolve around clusters of motors and gears — to develop greater power and traction than ever before applied to land clearing.

These giant machines are surprisingly easy to operate and are so efficient that the initial investment is soon recovered by quicker clearing with much smaller crews.

These are machines you'll want to consider for BIG land clearing jobs. Send for Land Clearing Booklet describing the operation of the five machines shown here.

SINCE 1929. R. G. LeTourneau, Inc. has built BIG equipment for 26 years under the SAME corporate structure. In 1953 LeTourneau sold part of its business, retaining plants in Longview, Texas, and Vicksburg, Miss. Today LeTourneau creates and produces electrically powered and controlled equipment for logging, land clearing, and off-road transportation.

LETOURNEAU

R. G. LeTOURNEAU, INC.

2759 S. MacArthur • Longview, Texas

LET EQUIPMENT

Equipment

C 110

For more facts, use Reader-Reply Card opposite page 18 and circle No. 806

A Beauty for . . .

EASIER READINGS

■ Famous Chrome Clad line with jet black markings that stand out sharp and clear against the no-glare chrome-white background.

EXTRA DURABILITY

■ Genuine *hand stitched* leather case with rust resistant metal case liner.

■ Line, built up by series of platings, resists rust and corrosion . . . won't chip, crack or peel.

EASY TO READ MARKINGS THAT ARE DURABLE

ANCHOR

Chrome Clad Steel Tapes

Available with graduations either in feet, 10ths and 100ths, or feet, inches and 8ths. Choice of hook or standard ring. 25, 50, 75 and 100 ft. lengths.

BUY LUFKIN TAPES • RULES • PRECISION TOOLS FROM YOUR SUPPLY STORE

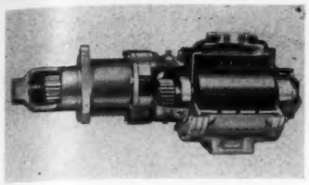
THE LUFKIN RULE CO., Saginaw, Michigan

132-138 Lafayette St., New York City • Barrie, Ont.

378

For more facts, use Reader-Reply Card opposite page 18 and circle No. 807

New air starting motor and thermatic fan drive



The Bendix-Westinghouse Startaire air starting motor.

■ Two new air-actuated devices for trucks—an air starting motor and a thermatic fan-drive system—are being made available for field installation by Bendix-Westinghouse Automotive Air Brake Co., Elyria, Ohio.

The Startaire air-starting motor is said to provide all-weather fast-action starting of heavy-duty gasoline and diesel engines. According to the manufacturer, the unit provides higher engine-cranking speeds regardless of cold or heat, and requires less space than equivalent electrical starting systems. The company also points out that conversion to air starting offers reduced electrical-system maintenance and lower total vehicle weight.

Featuring rotary multivane-type design, the Startaire motor is equipped with a friction clutch and housing, and is available as a ready-to-install unit fully interchangeable with electrical starting motors. Two models cover a wide range of applications. The Model 15 adequately cranks all engines up to approximately 1,100-cubic-inch displacement, and the Model 30 is recommended for larger engines.

The Bendix-Westinghouse air-operated thermatic fan-drive system is said to automatically control and maintain engine-coolant temperature at the most efficient operating level. A thermal element in a control valve either causes the engine fan to engage when more cooling is required or to disengage when engine coolant temperature falls below the desired operating temperature. The company claims that quicker engine warm-ups, reduction of sludging in engine lubricating oil, better over-all engine performance, and efficiency and longer life are obtained.

For further information on these two new products write to the company, or use the Request Card at page 18. Circle No. 740.

Folder describes improved abrasive tools

■ A folder available from The Black & Decker Mfg. Co., Joppa Road, Towson 4, Md., illustrates and gives details on the company's improved line of abrasive power tools.

The line includes a 7-inch standard ball-bearing sander, said to provide 20 per cent more power while weighing 20 per cent less than previous models; a 7-inch heavy-duty ball-bearing sander-grinder, reportedly offering 90 per cent more power; a 9-inch heavy-duty ball-bearing sander-grinder, an altogether new model recommended for peak performance under tough conditions; and new 5 and 6-inch portable grinders.

All the units described in this literature feature improved performance and design, according to the manufacturer. Complete specifications and prices for the tools, as well as for accessories, are listed.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 727.

Low-Priced Loading!

KOLMAN 'JUNIOR' PORTABLE CONVEYOR

Model 202
40' x 24" belt

Rugged Box-Type Construction Permits Amazing Low Price!

The KOLMAN 'Junior' Conveyor is designed to meet the demand for a portable conveyor low in price but rugged enough to support a Loading Trap and large Vibrating Screen. The 'Junior' will take all the punishment that is dished out to a portable outfit—and will cost you less to own and operate!

The rugged box-type construction gives you unusual strength and rigidity for such low prices. The sides are of fabricated 3/16" steel plate formed into a channel 16" deep with 2" legs. A steel belt cover completely covers the top, giving additional rigidity, completely encasing the return belt and preventing material from working in to damage the belt.

The underslung power unit provides easy access for operation and servicing. The screen folds under and the complete plant can be moved without disassembly. Self-cleaning tail pulley, bar-type head pulley, ball bearings throughout, and heavy-duty truck axles and tires give it the biggest combination of fine features in the low price field.

SEND for FREE literature

KOLMAN Manufacturing Co.
4922 W. 12th St. Sioux Falls, S. D.
Send literature on:
☐ 101 Heavy Duty Conveyor
☐ 202 Junior Conveyor
☐ Screens ☐ Feeders ☐ Traps
Quote ..... size or ..... capacity
Name .....
Address .....
City .....

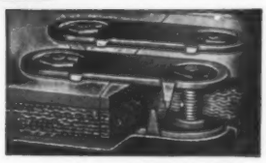
For more facts, use Reader-Reply Card opposite page 18 and circle No. 808

FLEXCO®

BELT FASTENERS and RIP PLATES

FOR HEAVY CONVEYOR AND ELEVATOR BELTS OF ANY WIDTH

★ FLEXCO Fasteners make tight butt joints of great strength and durability.
★ Trough naturally, operate smoothly through take-up pulleys.
★ Distribute pull or tension uniformly.
★ Made of Steel, Monel, Stainless, Everdur. Also Promal top plates.
★ FLEXCO Rip Plates are for bridging soft spots and FLEXCO Fasteners for patching or joining clean straight rips.



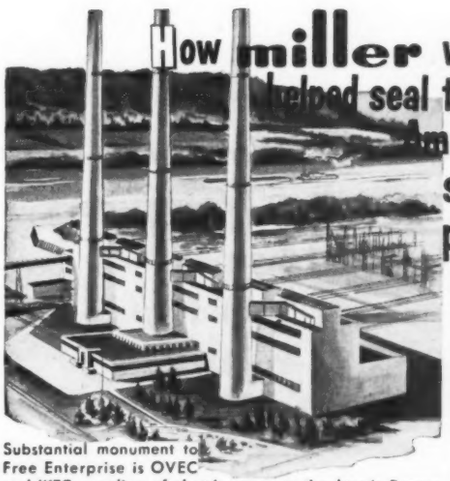
Compression Grip distributes strain over whole plate area

Order From Your Supply House. Ask for Bulletin F-100

FLEXIBLE STEEL LACING CO., 4608 Lexington St., Chicago 44, Ill.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 810

How miller welders helped seal the arteries of America's largest single purpose power plant...



Substantial monument to Free Enterprise is OVEC and IKEC, suppliers of electric power to the Atomic Energy Commission's new uranium diffusion center in Pike County, Ohio.

Miller Selenium Rectifier d-c Arc Welder, in four wide-range models. For complete, concise, worthwhile information on these and other Miller Arc and Spot Welders, contact us today ... at no obligation, of course.

Ohio Valley Electric Corporation and its subsidiary, Indiana-Kentucky Electric Corporation, agreed to supply electric power to this great new atomic production center . . . *15 billion kilowatt-hours annually.*

Two huge generating stations are being built: The Kyger Creek Plant at Cheshire, Ohio will have five generating units of 200,000 KW each; Madison, Indiana's Clifty Creek plant will produce 1,200,000 KW with its six big generators. Each of the eleven turbo-generating units will operate off a single boiler, with super-heated steam reaching 1,050 degrees Fahrenheit under 2,000 lbs. pressure per square inch! The high temperatures and reheat, which the sponsor companies have pioneered in their own right, will make these two plants among the most economical, most efficient generating stations in the country.

These same elements, however, make the fabrication of faultless high-pressure steam lines vital . . . and extremely difficult. To accomplish this extremely important task, pipe welding specialists equipped with the maximum of engineering skill utilized the Miller Selenium Rectifier d-c Arc Welder.

". . . . if it's Miller, you *know* it's the *finest!*"

miller ELECTRIC MANUFACTURING COMPANY, INC.
APPLETON, WISCONSIN

Distributed in Canada by Canadian Liquid Air Co., Ltd., Montreal, P.Q.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 809

Tread on new tire is deeper and wider

■ Tread on the casing of the new Super Expressway highway tire runs 12 to 15 per cent wider and deeper than the Expressway tire which it supercedes.

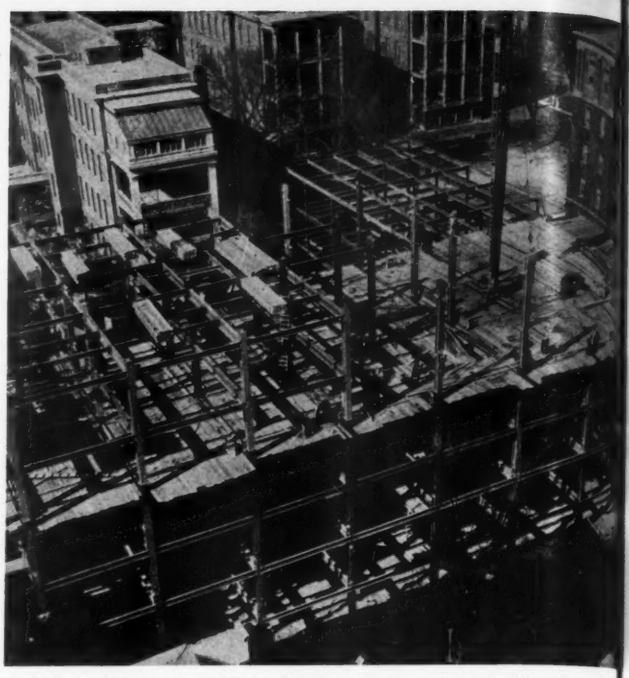
With a tread design similar to the Expressway, the Super is available in both standard carcass construction and Nygen. More and longer side vents are built into the shoulders of the tire for better heat radiation and cool running.

The new Super Expressway has been run over hundreds of thousands of miles of sun-baked asphalt and concrete highways in Texas for testing purposes. The over-the-road casing is also reported to have successfully passed comprehensive indoor wheel-dynamometer tests for strength.

For further information write to General Tire & Rubber Co., Akron, Ohio, or use the Request Card at page 18. Circle No. 658.

Manufacturing rights purchased by Wausau

Wausau Iron Works, Wausau, Wis., has purchased the manufacturing and sales rights of the heavy-duty underbody Willett hydraulic truck graders and truck patrols from Charles G. Willett, owner of the Willett Manufacturing Co., Grand Rapids, Mich. All manufacturing operations on the equipment will now be done in the Wausau plant.



Steel for the 15-story center block of the Toronto General Hospital begins to rise skyward. Fabrication and erection of the shop and field-welded members is being handled by the Ontario Division of the Dominion Bridge Co., Ltd., Montreal, Canada.

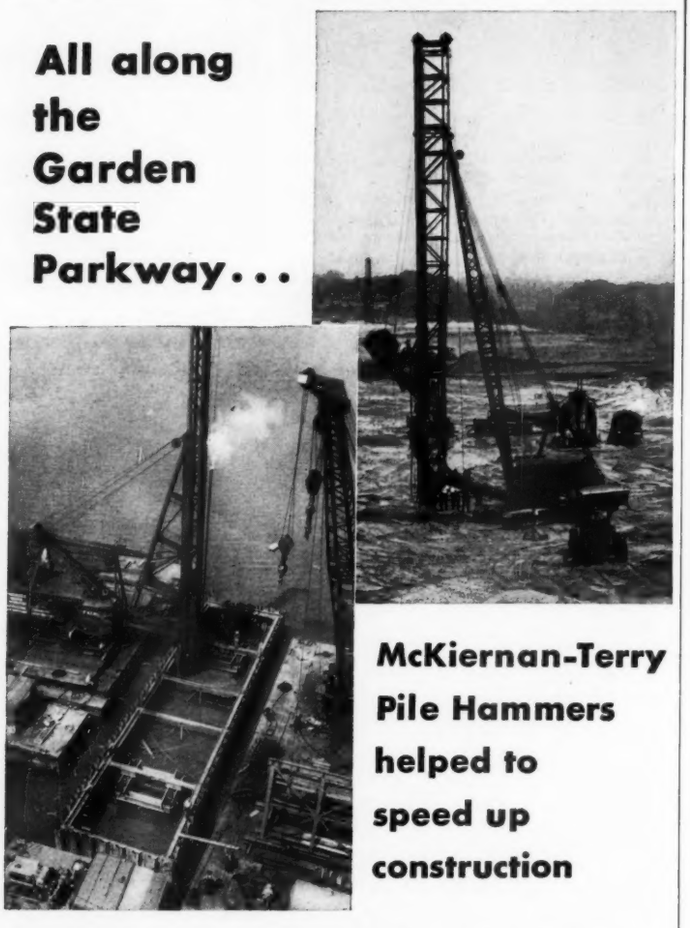
Ultrasonic device tests weld on st

An ultrasonic testing unit, enabling one man to distinguish porosity, slag inclusions, cracks, and the extent of any discontinuities in welded metal, is being used to test welded joints in the 2,900 tons of steelwork forming the skeleton of the new $20 million addition to the Toronto General Hospital in Toronto, Ont.

This method, believed to be the first application of its kind in Canada, is being used on the framework of the new one-story students' building, the two-story south block, and a large fifteen-story center block which will be joined to the two other structures by two-story wings. The latter structure will contain 21 operating rooms having the most modern equipment, including closed-circuit television. The new buildings, designed by Mathers & Haldenby of Toronto, will add almost 450 beds to the capacity of the hospital.

Steelwork for the extension is being fabricated and erected by the Ontario Division of Dominion Bridge Co., Ltd., Montreal, and is being shop

All along the Garden State Parkway...



McKiernan-Terry Pile Hammers helped to speed up construction

On river bridge piers and land approaches, highway overpasses, and sand drain soil stabilization along the length of New Jersey's new Garden State Parkway, McKiernan-Terry Pile Hammers helped contractors carry out their foundation work in quickest time and at least cost.

The wide use of these powerful and dependable hammers on this important project is typical of their preference among contractors all over the country on all types of foundation work. Your own foundation jobs, too, will be speeded up by McKiernan-Terry Single-Acting Pile Hammers, Double-Acting Pile Hammers and Extractors.

Write for descriptive bulletins.

McKIERNAN TERRY

MK360

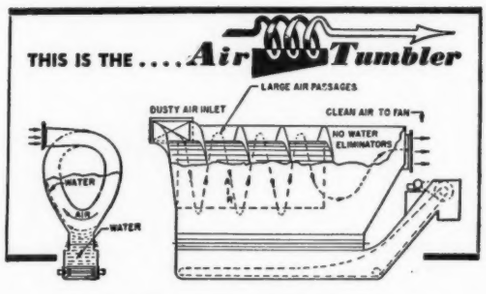
McKIERNAN-TERRY CORPORATION

82 Richards Avenue, Dover, New Jersey

Manufacturing Engineers • Plants: Harrison, N. J., Dover, N. J.

Also builders of Coal and Ore Unloaders and Bridges, Grab Buckets, and Special Machinery

For more facts, use Reader-Reply Card opposite page 18 and circle No. 811



the master of **DUST** *in industry* ★ ★ ★

SIMPLE — DEPENDABLE
NO FIRE HAZARD
HIGH EFFICIENCY
CONSTANT CAPACITY
LOW OPERATING COST

WRITE FOR BULLETIN NO. 531

DUST SUPPRESSION & ENGINEERING COMPANY

P. O. BOX 67 • LAKE ORION, MICHIGAN

For more facts, use Reader-Reply Card opposite page 18 and circle No. 812

Field-welded connections are tested with the Kelvin-Hughes apparatus on one of the upper floors. One man carries and operates the unit, which detects porosity, slag, cracks, and any faults in the weld.

eld on steel framework of hospital

and field-welded. After steel is erected, welds are tested with the ultrasonic tester, made by Kelvin-Hughes in Great Britain. The unit is a lightweight portable device used by one operator who is trained to spot any irregularities in the steel weld. A small unit on the ground supplies power for the apparatus.

Since the quality of the butt welds between beams and columns are of primary concern on this hospital addition, Messers. Wallace-Carruthers & Associates experimented with various types of non-destructive weld tests before deciding on the ultrasonic method. The actual experiments were carried out by Canadian Inspection & Testing Co., Ltd., in cooperation with the consulting engineers, Dominion Bridge Co., and other fabricators of welded structures in the Toronto area. Then Canadian Inspection selected the Kelvin-Hughes unit as the one most suited for use on open steelwork high above ground level.

THE END

Catalog on steel tools

■ A complete line of drilling, digging, chiseling, and pavement-breaking tools is illustrated and described in a catalog available from Delaware Tool Steel Corp., 3306 Market St., Wilmington 99, Del. Pneumatic, electric, and hand tools are also offered.

Complete specifications on a wide selection of sizes and points are given for pneumatic chipping-hammer drills; carbide-tipped masonry drills; electric-hammer chisels and drills; pneumatic chisels; riveting hammer retaining tools and rivet sets; pneumatic digging tools; demolition tools; and hand chisels, drills, punches, cutters, and wrecking bars.

Tools are available for use with a wide variety of pneumatic and electric hammers, according to the literature.

To obtain Catalog 55D write to the company, or use the Request Card that is bound in at page 18. Circle No. 721.

Keystone Asphalt news

Two new appointments have been made by Keystone Asphalt Products Co., a division of American-Marietta Co., Chicago, Ill. Jack Sampson has joined the firm's Chicago office as an inside salesman, and will be responsible for sales and customer service in the home sales office.

G. W. Norcross, who has been made research engineer at the Chicago Heights plant, has 19 years' experience in the asphalt-products field.

Big, heavy equipment, like the heavy Barber Greene trencher above, are easily loaded without the bother of any special skids, cribbing or jacks. ONE man . . . can load, or unload, in less than two minutes, by simply driving on or off the tilted platform. Big and broad, this caked decked platform provides plenty of room, and an extra low climb angle, for maximum operator and equipment safety. Construction men everywhere . . . are finding that for faster, safer, between-job hauling of dozers, rollers and other heavy equipment . . . MILLER Tilt-Tops are the ideal trailers. Put a Miller trailer to work on your team . . . you'll find it pays for itself.

Heavy Barber Greene trencher being loaded above, on special, wide platform Model "BT"-10 tandem axle Tilt-Top built for the city of West Allis, Wisconsin.

✓ built best
✓ priced best

See your MILLER distributor or write for FREE literature to:

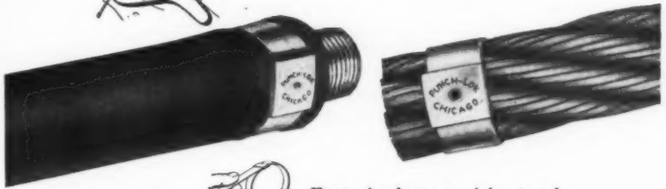
MILLER® Tilt-Top TRAILERS
research engineers
456 S. 92nd Street, Milwaukee 14, Wis.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 813

Fascinating!

SHIMMY and SHAKE
once you choose it—
you won't loose it!
PUNCH-LOK HOSE CLAMPS

"Got vibration problems?" asks Doc Punch. "Call in a specialist—your nearby Punch-Lok distributor. He'll solve your problem in a hurry!"



"The sign of a GOOD Hose Clamp"

Fastening hose or seizing tough wire rope—Punch-Lok clamps do the jobs with equal facility!

Write for complete product and price information.

PUNCH-LOK Company 5696

Dept. J, 321 North Justine Street • Chicago 7, Illinois

For more facts, use Reader-Reply Card opposite page 18 and circle No. 814

AVOID LEGAL PITFALLS

Edited by A. L. H. STREET
Attorney-at-Law

These brief extracts of court decisions may aid you. Local ordinances or state laws may alter conditions in your community. If in doubt consult your own attorney.

Faulty specifications: contractor gets damages

THE PROBLEM: *On an airport-construction project, the grading contractor thought specifications for drainage facilities were inadequate, and recommended a change involving installation of a herringbone tiling system. The Government's project engineer, however, repeatedly refused to recommend any changes, and the grading was completed and ready to be turned over to the paving contractor. But heavy rain during the night caused the ground to become so soggy that it took 60 days to condition it. This necessitated installation of the herringbone system on orders of the project engineer's superiors. Was the paving contractor entitled to resulting damages caused by idling of crews and equipment?*

THE ANSWER: Yes. (Warren Brothers Roads Co. v. United States, 105 Fed. Supp. 826, decided by the United States Court of Claims.) The court said that, except for the rain, the paving might have been completed without delay according to the original specifications. But rain did come, and the subsequent change in the specifications demonstrated that the originals were inadequate, as had been repeatedly insisted by the grading contractor.

This court cited several decisions as supporting the proposition that "where a contractor suffers damage on account of faulty specifications, he is entitled" to collect damages.

One of the cited cases was United States v. Spearin, 248 U. S. 132, 39 Sup. Ct. 59, decided by the United States Supreme Court. There a dry-dock construction project required the contractor to relocate a sewer that ran through the premises. The relocated sewer broke under internal pressure caused by rainfall and tide in conjunction with the existence of a dam in a connecting sewer. The project plans showed no such obstruction. The contractor refused to proceed unless the government paid for the resulting damage and either changed the sewer plan or assumed responsibility for any damage that might be caused thereafter. The court decided that the government was not entitled to annul the contract. The late Charles Evans Hughes argued the case on behalf of the contractor. The Supreme Court said:

". . . The sewer, as well as the other structures, was to be built in accordance with the plans and specifications furnished by the government. The construction of the sewer constituted as much an integral part of the contract as did . . . any part of the dry dock proper. . . . The risk of the existing system proving adequate might have rested upon (the contractor) if the contract for the dry dock had not contained the provision for relocation of the 6-foot sewer. But the insertion of the articles prescribing the character, dimensions, and location of the sewer (implied) a warranty that if the specifications were complied with, the sewer would be adequate. This implied warranty is not overcome by the general clauses requiring the contractor to examine the site, check up the plans, and to assume responsibility for the work until completion and acceptance."

But the Court of Claims also cited Christie v. United States, 237 U. S. 234, 35 Sup. Ct. 565, as illustrating the proposition that the government is not responsible for every erroneous exercise of judgment by its representatives. In that case government engineers had fixed an angle of repose for lock and dam construction. The angle was based on experience and would have been sufficient had not extraordinary flood conditions occurred. It was decided by the United States Supreme Court that the contractor could not hold the government liable for the cost of increased excavation due to the angle of repose. But the decision was influenced by the fact that the specifications, though requiring the excavations to conform to indicated lines, slopes, grades, and angles, admonished bidders that official judgment would be

It's built like a tire!

That's right! U. S. Royal Cord is built like a tire . . . *it has to be,* to take the battering it gets on all kinds of jobs, under extreme pressures. U. S. Royal Cord is hit by rocks in blasting; heavy tools fall on it; trucks and other vehicles roll over it; workmen pull it over jagged rocks. But U. S. Royal's unique cord construction, borrowed from "U. S." tiremakers, lets U. S. Royal come through unharmed. Needs no cribbing. Despite its great strength, this hose is very light and flexible.

- Tube of high quality neoprene for maximum oil resistance.
- Braided cotton breaker ply anchors tube to carcass everlastingly.
- *Exclusive:* Two counter-spiraled plies of tough special yarn floated in resilient rubber for outstanding strength, shear resistance and flexibility.
- Tough, brown, natural rubber cover (strongest ever put on a molded hose) gives excellent cut and abrasion resistance.

Buying second-rate, short-lived hose is no short-cut to economy. Get "U. S." quality hose for the biggest savings. No matter what your hose problem may be, "U. S." can solve it. Get in touch with any of United States Rubber Company's 27 District Sales Offices or write address below. You will obtain the correct job-engineered hose, and the guidance and advice of an expert staff of "U. S." engineers.

"U.S." Research perfects it . . . "U.S." Production builds it . . . U.S. Industry depends on it.

UNITED STATES RUBBER COMPANY
MECHANICAL GOODS DIVISION • ROCKEFELLER CENTER, NEW YORK 20, N. Y.

Hose • Belting • Expansion Joints • Rubber-to-metal Products • Oil Field Specialties • Plastic Pipe and Fittings • Grinding Wheels • Packings • Tapes Molded and Extruded Rubber and Plastic Products • Protective Linings and Coatings • Conductive Rubber • Adhesives • Roll Coverings • Mats and Matting

For more facts, use Reader-Reply Card opposite page 18 and circle No. 815

CATERPILLAR ANNOUNCES

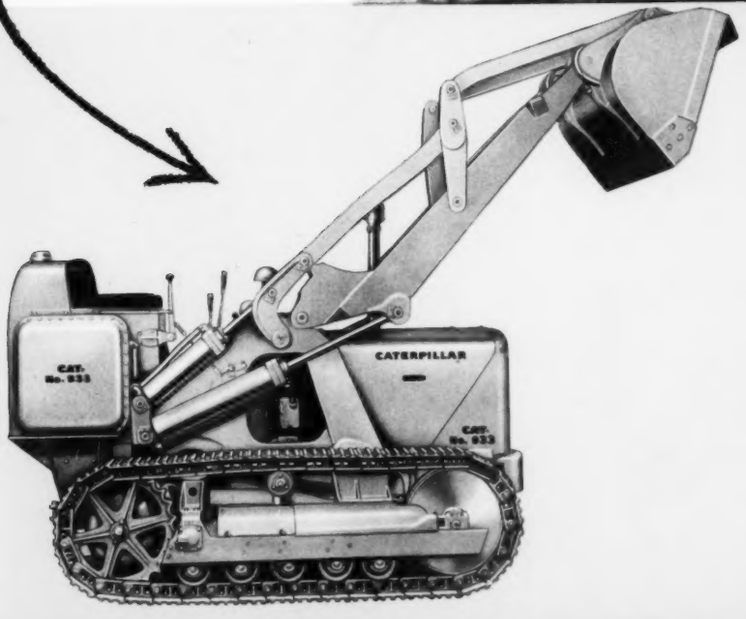
2 NEW TRAXCAVATORS

CATERPILLAR LEADERSHIP IN ACTION

NEW No. 955

1½-yd. capacity

Balanced units for bigger profits!



NEW No. 933

1-yd. capacity

EW

933

capacity

"Big production" features of the new CAT No. 955 and No. 933 Traxcavators

40-DEGREE BUCKET TIP-BACK AT GROUND LEVEL. Tip-back action at low bucket height results in maximum possible loads every pass in any material—bigger production per day!

NEW OIL-TYPE CLUTCH. Stands up under continuous repeated use. Cuts maintenance costs and time two ways. (1) Clutch adjustment, while easy, is seldom required. (2) Plate replacement is often unnecessary even at engine overhaul.

Also helps step up production by providing easier shifting for operator!

MODERN HYDRAULIC SYSTEM. Hydraulically balanced vane-type pump insures delivery of full volume and pressure of oil for thousands of hours. Control valves located in tank receive maximum protection against damage and dirt. Closed hydraulic system—no vents or breathers—prevents entrance of dirt. Full-flow hydraulic system filter protects moving parts against abrasive particles in fluid. Filter handily located for easy replacement of element!

PLENTY OF POWER. Power is ample to "bury" the bucket and provide fast lifting action and positive dumping under all load conditions.

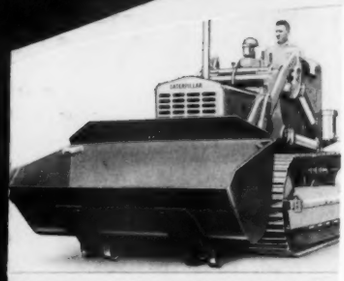
"DESIGNED-IN" COMFORT. Operator sits high, with excellent visibility of all bucket positions. All controls easy and convenient to operate—bucket control a one-hand operation! Pilot-house visibility —leisure-chair comfort.

PERFECT BALANCE. Weight distribution, engine horsepower and bucket capacity are balanced so that the full length of the track stays on the ground with a heaped load in the bucket.

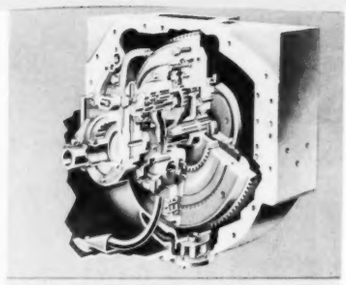
NEW 3-GROUSER TRACK SHOES. Tested and proved on tough jobs, they deliver better traction—longer life!

OPTIONAL STARTING. Your choice of 6-volt electric starting for starting engine or 24-volt direct electric starting—from the seat, either way.

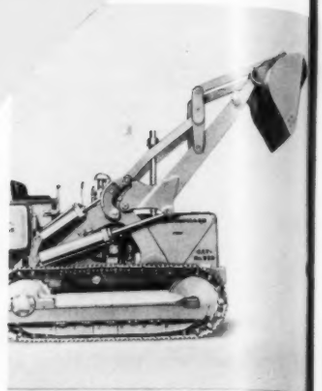
VERSATILE ATTACHMENTS. Your job range is increased by a variety of buckets and other useful attachments.



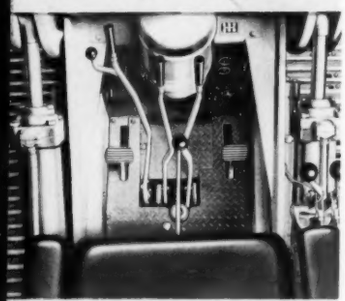
40-DEGREE BUCKET TIP-BACK AT GROUND LEVEL assures large loads every pass!



NEW OIL-TYPE CLUTCH sets new records for long life and minimum maintenance!



HIGH REACH with box-section lift arms for rugged service. Cross brace prevents twisting!



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HYDRAULIC FILTER IN HANDY LOCATION affords easy replacement of the element!

BRIEF SPECIFICATIONS

	No. 955	No. 933
Flywheel HP at sea level	70	50
Bucket capacity, cu. yd.	1½	1
Bucket tip-back at ground level, degrees	40	40
Bucket tip-back at max. lift, degrees	47½	48
Dumping height (center of hinge pin to ground)	128"	118½"
Weight (approx.) lb.	21,480	15,500

—AND MANY OTHER FEATURES!

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Designed from the ground up as excavating and loading machines, the new CAT* No. 955 and No. 933 Traxcavators are balanced *units*. Built and backed from tracks to buckets by *one* manufacturer, they also give you advantage of *one* service source—your nearby Caterpillar Dealer. With practical, advance-design features, they're engineered to *outproduce* ordinary tractor-shovels of equivalent size. You'll find these versatile units the handiest tools in your equipment line-up. Get the money-making picture from your Caterpillar Dealer—ask for a demonstration!

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NEW BIG-PRODUCTION TRAXCAVATORS

used by the engineers. Bidders were specifically informed that the particular angle of repose would be selected.

The Court of Claims also cited its previous decision in Anthony P. Miller, Inc., v. United States, 77 Fed. Supp. 209, where the contractor on a federal housing project was awarded damages resulting from delay due to unduly prolonged determination by the government as to whether a reserved right to change plans should be exercised.

Another cited case was George A. Fuller Co. v. United States, 69 Fed. Supp. 409. Here the Court of Claims ruled that the government was liable to a building contractor in furnishing models, even though there was no clause in the contract expressly making the government liable for delays.

City has power to employ engineers for special job

THE PROBLEM: *Did exceptions in the Civil Service provisions of the Los Angeles city charter permit special employment of an engineering firm to prepare plans and specifications for a flood-control project?*

THE ANSWER: Yes. (Dorsey v. City of Los Angeles, 282 Pac. 2d 997, decided by the California District Court of Appeals, Second District—Los Angeles).

The decision rested upon the principal fact that the regular engineering department of the city was inadequate to deal with the emergency presented and the fact that temporary engineering services of a highly specialized kind were needed.

Unlawful picketing

THE PROBLEM: *A labor union picketed a Louisana road contractor's job on which non-union men were employed. All of the jobs on the contract were filled, and it would have been impossible for the contractor to hire local union labor without violating the Louisiana "Right-to-Work" Law by discharging his non-union workers. Was he entitled to an injunction against picketing?*

THE ANSWER: Yes. (Hanson v. International Union of Operating Engineers Local No. 406, 79 So. 2d 199, decided by the Louisiana Court of Appeals, First Circuit.)

Bid solicitors must claim kickbacks as income

THE PROBLEM: *Company representatives capitalized upon their positions by receiving kickbacks from bidders dealing with the company through them. In filing federal tax returns they did not report the kickbacks as income. Were they punishable as having willfully attempted to evade income taxes?*

THE ANSWER: Yes. (United States v. Bruswitz, 219 Fed. 2d 59, decided by the United States Court of Appeals, Second Circuit.)

The court rejected argument by the defendants' lawyers that acceptance of the kickbacks constituted "embezzlement" and that the employer could require that they repay the money.

Irregular bid upheld

THE PROBLEM: *A Maryland board of education law that work be awarded to the lowest responsible bidder after published notice that bids would be received, did not require that a bid bond or certified check accompany a proposal. Nor did published notice so require, but a bulletin issued by a board's architect specified that a bond or certified check for 10 per cent of the amount should accompany the bid, and it should be forfeited on refusal to contract. The lowest bidder did not comply with that specification, although he had applied for a bond and had deposited an uncertified check as security pending arrival of the bond. Did the next lowest bidder have a right to enjoin award of the contract to the lowest bidder?*

THE ANSWER: No. (Board of Education, Carroll County v. Allender, 112 Atl. 2d 455, decided by the Maryland Court of Appeals.)

The court stressed the point that a bid bond is operative only until a contract is made. There was nothing to show that the board of education had acted collusively or fraudulently in making the award, and, if it believed that the public interests would be best served by waiving the bid-security requirement, it had a right to do so.

But the court intimated that where there is a statute or ordinance that requires security to be filed with bids, failure to comply voids a bid. Reference was made to a decision by the Pennsylvania Supreme Court in a case where the lowest bid, $16,749,936, was accompanied by a check that was about $12,500 short under a requirement that it be for 5 per cent of the bid. The court in that case decided that the bid was void, even though it was $113,500 lower than the next lowest bid and a $25,000 check was deposited after the bids had been opened. (Harris v. City of Philadelphia, 283 Pa. 496, 129 Atl. 460.)

Supplier forfeits rights through waiver of lien

THE PROBLEM: *A general contractor on a federal project awarded a subcontract but he waived performance bond on assurance by a material man that he would not hold the general contractor liable for materials furnished to the subcontractor. Did the material man thereby waive rights against the general contractor and its*

LIGHT, RUGGED AMSCO® DIPPERS deliver more loads per shift

The all-cast Amsco dipper is made of the toughest steel known . . . manganese steel. Amsco dippers withstand rough handling, sharp impact and grating abrasion because of this same sturdy construction. And all dipper segments are plug-welded together, adding strength without increasing weight.

Notice the raked design . . . those sharp, fanned teeth bite out a capacity load every time. Dumping is instantaneous, because the dipper bottom has a larger opening than its top. And there are no snagging edges or cavities on the interior to collect clods and lower loading capacity.

Specify these light, rugged, Amsco dippers to get more bite and higher loading into the working end of your dipper sticks. You'll get more digging done in less time at no increase in power load. Specify Amsco manganese steel, too, for other parts that must be *extra tough*.

AMERICAN Brake Shoe COMPANY

AMERICAN MANGANESE STEEL DIVISION
Chicago Heights, Ill.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 816

surety under the Miller Act?

THE ANSWER: Yes. (United States v. Embrey, 130 Fed. Supp. 643, decided by the United States District Court for Idaho.)

Careless pedestrian's damage claim denied

THE PROBLEM: *Old brick paving was being removed from a New Orleans street. In broad daylight, the plaintiff stepped from a curb to the surface and after walking a few steps fell in stepping from the brick level to the base level—about 3 inches. Was the contractor liable because no barricade or warning had been erected?*

THE ANSWER: No. (Jones v. Boh Bros. Construction Co., 79 So. 2d 899, decided by the Louisiana Court of Appeals, Parish of Orleans.)

Sewer contractor could limit his bid on job

THE PROBLEM: *Under Indiana law, a city could not let a sewer-improvement contract until it had received the proceeds of a sale of bonds to pay for the job. Nevertheless, the city called for bids on each of three sections of the work and on all sections. A contracting company submitted proposals covering all three sections, but made it clear before the bids were opened that it was bidding for all three or none. The bids were opened nearly two months before the bond proceeds were available. When the proceeds were available the city attempted to accept the company's bids for only two sections. On the company's refusal to contract on that basis, did it and its surety on the bid bond become liable in damages to the city?*

THE ANSWER: No. (City of Mishawaka, Ind., v. Santucci Construction Co., 205 Fed. 2d 225, decided by the United States Court of Appeals, Seventh Circuit.)

The court said that until the proceeds of the bonds were available, the city was incapable of contracting, that until then it could have abandoned the project without liability to any one, and that there was nothing to prevent the company from conditioning its bids on an "all or none basis."

Hurt truck rider did not get award

THE PROBLEM: *The defendant company was engaged in airport construction. It notified its lorry (truck) drivers not to carry passengers other than its employees. In each cab a notice was posted to that effect along with a warning that non-employees rode at their own risk. Sometimes the rule was broken by drivers, but it did not appear that a responsible representative of the company was aware of the violation. The plaintiff's not the defendant's employee, was given a ride by a driver who did not know that the rider was not an employee. In alighting, the rider was injured. If he had been injured through negligence of the driver, would the defendent be liable?*

THE ANSWER: No. (Conway v. George Wimpey & Co., Ltd., English Law Reports, King's Bench Division, 1951(2), 266, decided by the Court of Appeal.)

It is probable that almost any American court would reach the same decision under a similar factual situation.

The desirability of following the English company's example is obvious, although the posted notice might be briefer: "The driver of this vehicle has strict orders to carry no passengers other than the employees of George Wimpey & Co., Ltd., during the course of or in connection with their employment. Any other person traveling on this vehicle does so at his own risk." On each side of the truck "Wimpey" appeared in large letters.

Officials' interests in public contracts is restricted by law

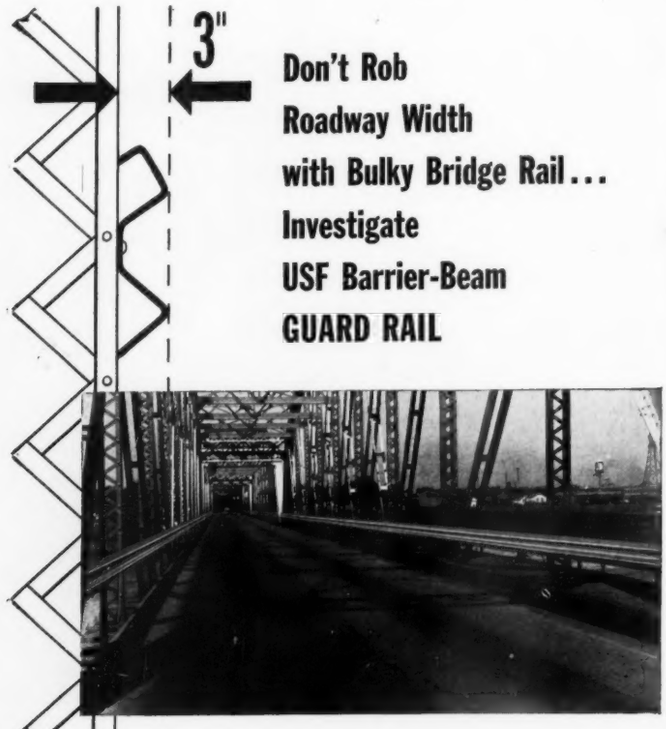
THE PROBLEM: *In 1954, the people of North Dakota voted to adopt a statute which forbids a state legislator, his spouse, or any firm, corporation, or association in which either holds a 5 per cent interest or more, to perform work or furnish materials, etc., to the state or any of its subdivisions, for a consideration in excess of $10,000, in any one year. (1) Is the law constitutional? (2) Does it apply to contracts made before the law became effective? (3) Does the $10,000 limit apply to each political entity—state or subdivision—or to the aggregate amount involved in all contracts made in one year?*

THE ANSWERS: (1) Yes. (2) No. (3) Applies to each entity. (Lindberg v. Benson, 70 N. W. 2d 42, decided by the North Dakota Supreme Court.)

Oral agreement not binding

THE PROBLEM: *A farmer orally agreed to permit a contractor to remove up to about 200,000 cubic yards of gravel at a fixed yardage rate. Removal was subject to issuance of a permit by local authorities. Before the authorities acted upon the application for a permit, the farmer called the deal off. Was he liable in damages to the contractor?*

THE ANSWER: No. (Vitale v. Russell, 126 N. E. 2d 122, decided by the Massachusetts Supreme Judicial Court.)



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USF Barrier-Beam Guard Rail requires only 3" of roadway width when used as a bridge traffic rail. This beam section rail offers you high deflection properties combined with great beam strength that permit its direct mounting to the bridge structure . . . no bulky spring mounts to take up additional roadway width.

On new bridges, and old ones where roadway width is at a premium, look to the space advantages and protection of USF Barrier-Beam Guard Rail.

Write for complete descriptive bulletin "Barrier-Beam" giving all engineering details and specifications.

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Structural-Plate Bridge Flooring • Barrier-Beam Highway Guard Rail
Corrugated Metal Drainage Products • Prefabricated Steel Buildings
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Omaha Dragline Buckets get out and dig in for you. Tough cutting lips of alloy steel are sharp enough to sink in like a garden spade. Faster, smoother working, your Omaha Bucket finishes the job sooner . . . brings you bigger profits. Write now for complete catalog giving specifications of 4 available types.

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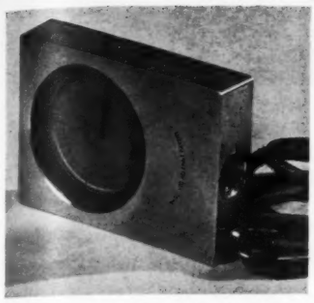


The Suunto optical-reading clinometer.

Pocket-size clinometer for leveling operations

■ A new pocket-size optical-reading clinometer now being imported from Finland by the Imperial Trading Co., 1116½ N. Western Ave., Los Angeles 29, Calif., is suggested for use in indicating vertical angles or slope inclination and as a hand level for earthmoving operations, excavation, staking-out structures, building, setting forms for concrete, and land leveling.

The Suunto clinometer uses two easily read calibrated scales, one indicating degrees and the other per cent, which are viewed through a self-focused, parallax-free lens. Self-moving parts turn on sapphire bearings. A third scale can be read directly in close work. There are no screws to turn or adjustments to make, and no tripod or accessories are needed.

According to the manufacturer, object sighting and scale reading are done simultaneously, thus saving time in setting grades for ditches, canals, and sewers. Accuracy is said to be 10 to 15 minutes.

The instrument is enclosed in a lightweight corrosion-resistant metal case. A brown leather carrying case is also supplied. Dimensions of the instrument are $2\frac{1}{16} \times 2\frac{7}{8} \times \frac{5}{8}$ inches. It weighs slightly more than four ounces.

For further information write to the company, or use the Request Card at page 18. Circle No. 720.

Concrete-placing gun

■ Information on the Blastcrete Model PM-2 concrete-placing gun and on the Blastcrete angle nozzle is contained in illustrated folders available from Blastcrete Service Co., Inc., 955 E. Slauson Ave., Los Angeles 11, Calif.

According to the literature, the Model PM-2 will place 1 to 5 cubic yards of concrete per hour, or approximately 1¼ cubic yards per hour per 100 cfm of air. An added advantage is said to be the fact that the Blastcrete gun will handle materials either dry or with up to 6 per cent moisture. The gun handles all cementitious materials for construction and all refractory materials, as well as many lightweight aggregates.

The Blastcrete angle nozzle is said to provide the answer for shooting linings and coatings in small out-of-the-way places.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 719.

Generator-type welders

■ A new line of gasoline-engine-driven generator-type welders has been announced by the Westinghouse Electric Corp., P. O. Box 2099, Pittsburgh 30, Pa. Available in current ranges of 30 to 350 amp, ac or dc, the new welders are compact, completely self-powered, and may be equipped with optional running gear.

One dc model is a dual-purpose unit which not only handles all types of dc welding, but can also be converted into an ac power plant by a switch. The ac model has, in addition, a 110-volt dc outlet for operating universal drills and lights. Another model is equipped with high frequency so that it can be used for Heliarc inert-gas welding. All units have infinite current adjustment.

The gasoline engine is an air-cooled four-cylinder 20-hp Onan Model CW.

For further information write to the company, or use the Request Card at page 18. Circle No. 620.

Rotary hand pumps

■ Rotary hand pumps in 7 to 28-gpm capacities are illustrated in a folder from Blackmer Pump Co., 1809 Century St. S. W., Grand Rapids 9, Mich.

Blackmer hand pumps are available with a choice of sliding or swinging vanes. The vanes are self-adjusting for wear and offer positive displacement and control. These hand pumps will handle a variety of liquids including all but the most corrosive, abrasive, or viscous.

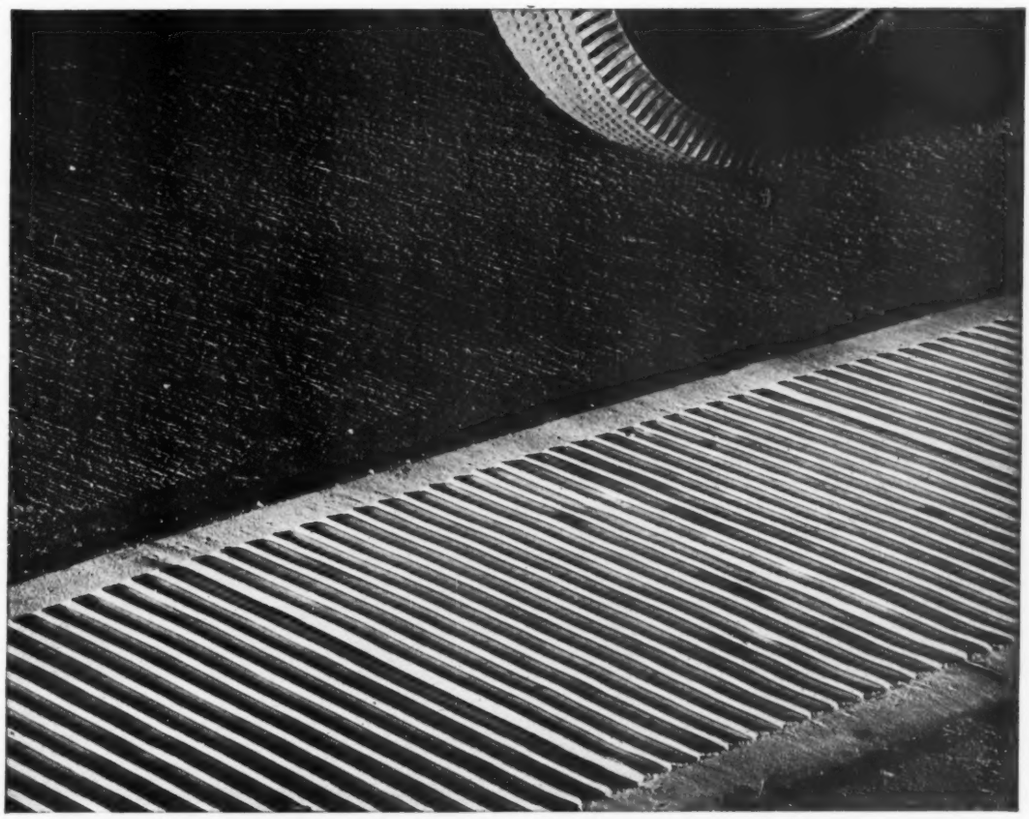
To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 646.

Line of machinery cabs

■ Construction-machine cabs are pictured in two illustration sheets issued by Crenlo, Inc., Rochester, Minn.

Illustrated is the Crenlo Model 1105 AM winterized enclosure, as well as tailored cabs for Caterpillar and International Harvester tractors, Allis-Chalmers four-wheel prime movers, and Whiting trackmobiles.

To obtain these sheets write to Dept. KP, Crenlo, Inc., Rochester, Minn., or use the Request Card at page 18. Circle No. 702.



HUM-M-MING guide of gleaming white makes driving safer—day or night!

"Listen! You're leaving your lane," sings this modern traffic marker when tires cross its corrugated surface. Scientifically designed to give drivers double protection, it not only shows traffic divisions, it hums an unmistakable warning when a driver starts to turn out of his lane.

Made with Atlas White Cement, this double-duty marker makes driving safer round the clock. By day, it stands out in marked contrast to the darker highway pavement... acts as a continuous safety guide, mile after mile, hour after hour. After dark, its ribbed surface catches headlight beams and flashes them back to the driver turning the marker into a brilliant ribbon of white. In rain this "mirror action" increases... makes the marker even easier to see and follow.

Investigate this safe, modern way to channel fast-moving traffic for your next highway project. Write for more information today.

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WHITE-RIBBED SURFACE of traffic markers made with Atlas White Cement reflects headlight beams back to driver... hums an audible warning if he leaves his lane.

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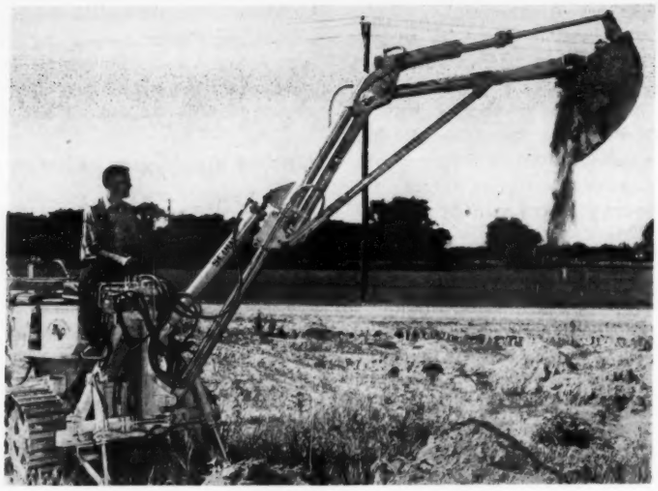

The Shawnee Scout Model 70 ditcher on a TerraTrac crawler tractor. ►

Ditcher is adapted for use on tractor

■ The adaptation of the Shawnee Scout Model 70 ditcher for installation on TerraTrac Model 300, 400, and 500 crawler tractors has been announced by the Shawnee Mfg. Co., 1947 N. Topeka Blvd., Topeka, Kans.

Several new features have been added to the Scout ditcher in adapting it for use on TerraTrac tractors, according to the manufacturer. These include individually controlled self-leveling hydraulic outriggers which keep the unit level regardless of the slope of the ground. Also, if a tractor is equipped with a Terraloader in conjunction with the Scout 70, both units can be operated off the loader pump. Removal of four bolts and two pins permits detaching of the Scout in a few minutes.

The Scout ditcher digs 12 feet deep, loads 8½ feet high, and reaches 14 feet.

For further information write to the company, or use the Request Card at page 18. Circle No. 705.

Anti-stripping additive for bituminous mixes

■ A bonding and antistripping additive for bituminous materials is discussed in a booklet from Maguire Industries, Inc., 182–27 Liberty Ave., Jamaica 33, N. Y.

When present in asphalt or tar, Nostrip additive makes possible the coating of wet aggregates and renders the bituminous film resistant to subsequent stripping due to water seepage.

Among topics taken up in the brochure are the use of Nostrip in cold and hot-laid bituminous mixtures, methods of blending the additive with bituminous materials, and testing of Nostrip treated mixes.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 654.

Pressure-treated lumber

■ Light and heavy construction uses of lumber that is pressure-treated with Wolman salts are detailed in an easy-to-read booklet released by the Wolman Preservative Department of Koppers, Co., Inc., 1301 Koppers Bldg., Pittsburgh 19, Pa.

A breakdown is presented, also, of the widely varied fields in which this type of treated lumber may be used most effectively. The specific advantages of its application in each type of construction are listed.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 621.

GMC'S NEW BLUE CHIP MODEL MW620-42 (at right) gets the power to hustle extra-hefty loads over tough terrain from a rugged 190-h.p. truck engine. Twin Hydra-Matic Drive eliminates shifting effort—protects engine, axle and drive-line. The MW620 has a new 34,000 lb. capacity tandem axle—is rated for 42,000 GVW-65,000 GCW work. The GMC M500 awaiting its turn at left is a two-axle model powered by a 155-h.p. engine that's teamed with 8-speed Hydra-Matic. It's rated at 24,000 GVW.

They've got the bigger "muscles" a construction hauler needs

THEY'RE even brawnier than they look – the 19 rugged new tandem-axle jobs spanning the 28,000 GVW-90,000 GCW range in GMC's great new Blue Chip line.

Their frames, for example, are of a unique new design that builds in super-stamina. If your operation is unusually severe, full-length reinforcements* can be installed right at the factory. There are new extra-capacity axles—front and rear.

And the big choice of power plants—gasoline or Diesel—155 to 230 h.p.—can swing a lot more work with their high torque output—do it faster and with less strain. When time and tonnage are closing in on you their reserve power makes the big difference.

Bigger Clutches, Too

New 2-plate 14-inch clutches give you up to 76% greater working surface—prolonging clutch-life and making shifting easier. Or you can eliminate all clutch-and-shift work—and all clutch repairs as well—with any of the 9 new Hydra-Matic models.

In all 19, you can have Safety Power Steering* to help drivers with the tough going. And every one of them has the kind of rims-to-roof ruggedness that makes down-times fewer and farther between – truck-life longer and more profitable.

In this big range of models, there's sure to be one made to order for your job. Check on it at your GMC dealer's today!

Optional at extra cost

See GM Diesels at work at the

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SPRAY-LUBE... For Open Gears

Here's a superior heavy-duty grease for open gears on:

CRANES BACKHOES SHOVELS
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SPRAY - LUBE encourages proper lubrication . . . and gives you these important benefits:

1. Easy to apply. No fuss. No mess
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Packed in 12-can cases. For additional information about SPRAY-LUBE, write to:

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Box 342
West Chester, Pennsylvania
Selected dealerships available

For more facts, circle No. 821

New heater added to line of indirect-fired units

■ A new portable heater said to mark a radical departure from conventional heater design has been announced by American Air Filter Co., Inc., 217 Central Ave., Louisville 8, Ky. The new unit reportedly is the first indirect-fired air heater to be made available in the low price field.

The Herman Nelson Thrifty heater is fired with ordinary fuel oil, but will burn gasoline just as efficiently when outdoor temperatures fall below the firing range of fuel oils, according to the manufacturer. Heating capacity is manually controllable from 50,000 to 170,000 Btu per hour. Heated ventilation air is discharged under pressure by means of an electric motor-driven blower. The heater is recommended for both indoor and outdoor use, and canvas ducts can be used to spot heat where desired. Combustion gases can be separately vented to the outdoors whenever safe practice requires that precaution.

With the announcement of the new Thrifty unit, the Herman Nelson line of portable air heaters now includes three models; the Utility and De Luxe heaters are also indirect-fired.

For further information write to the company, or use the Request Card that is bound in at page 18. Circle No. 744.

Air-cooled diesel unit weighs only 235 pounds, delivers 8 horsepower

■ A small lightweight air-cooled diesel engine, said to be the first practical diesel unit of its size, has been announced by Diesel Power, Inc., P. O. Box 72, Greenville, Pa. Rated at 8 horsepower and weighing only 235 pounds, the unit is expected to prove popular for powering small machinery, pumping water, and other applications.

The Model A-141 air-cooled diesel engine is said to compare in power with 500-pound units. The weight differential reportedly is accounted for in the fact that, whereas other units are water-cooled and therefore require heavier and more complicated parts, this air-cooled engine makes liberal use of aluminum alloys for such components as crankcase and blower parts.

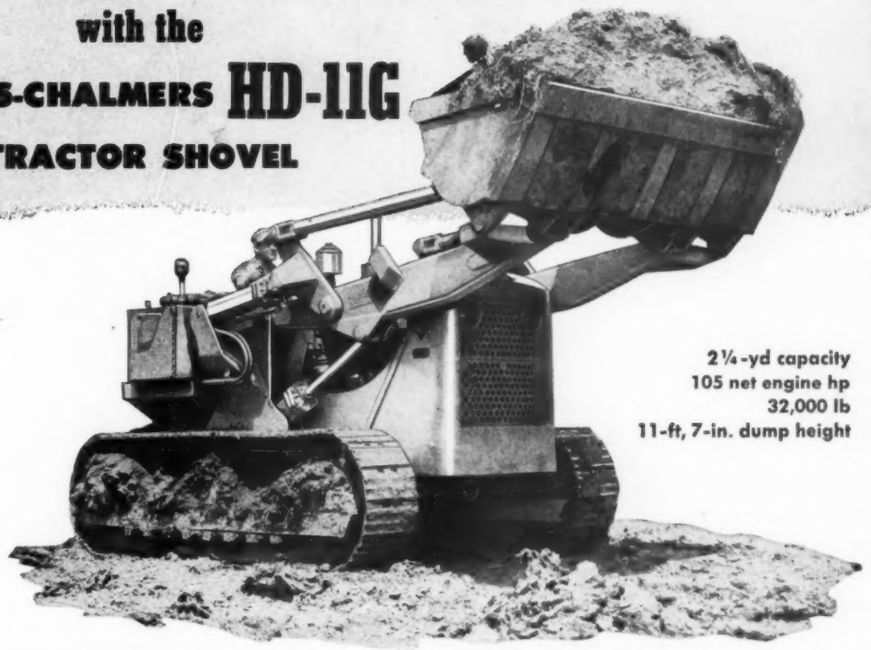
One of the main features of the new engine is its reported capacity to burn all of the injected fuel. There is no lead-off at the fuel injection, according to the manufacturer, since there is never any unburned fuel which must be returned to the main fuel supply.

Auxiliary equipment available optionally includes a 12-volt electric starter, generator and storage battery, and clutch and power take-off.

Specifications of the new engine include: bore and stroke, 3¾ inches; compression ratio, 17 to 1; over-all height, 29 inches; length (without clutch and power takeoff), 29 inches; over-all width (with generator and starter), 23 inches.

For further information write to the company, or use the Request Card at page 18. Circle No. 703.

NEW OUTPUT ABILITY
with the ALLIS-CHALMERS HD-11G TRACTOR SHOVEL



2¼-yd capacity
105 net engine hp
32,000 lb
11-ft, 7-in. dump height

NEW POWER is provided by the modern, 105-hp Allis-Chalmers diesel. Tornado Turbulence and "follow-through" combustion mean cleaner burning and more power from fuel, as well as smoother engine performance and extra long engine life. Added power pays off in extra crowding and digging ability, fast work cycles.

NEW CAPACITY. Big 2¼-yd bucket is streamlined to roll in large loads more easily. Improved design cuts spillage, clean dumping saves time and effort shaking out loads. Optional 2¼-yd tip-back bucket rolls back 25 degrees at ground level, handles bigger loads of loose material.

NEW STABILITY. Extra-long track — with almost 9 ft of track on the ground — plus 8 truck wheels on each side and 32,000 lb of weight, give the HD-11G unusual stability, plenty of traction.

NEW-TYPE HYDRAULIC SYSTEM is simpler, safer, easier to maintain. Tank has fewer external fittings. Magnetic filters and suction-line screens protect entire system. Hydraulic pump offers fast action, long life.

NEW OPERATOR CONVENIENCE. The HD-11G features easily controlled, accurate bucket action; reduced lever pull with new-type clutch; full vision; roomy platform; foam rubber seat; 60-gal fuel tank.

NEW DEPENDABILITY AND SERVICING EASE result from such features as heavy-duty truck wheels and idlers; new, long-life track; new-type, long-lasting, ceramic master clutch lining; unit construction's quick disassembly and assembly of major parts; 1,000-hour lubrication intervals for roller bearing truck wheels, support rollers, idlers.

stop in soon and see the production-boosting HD-11G

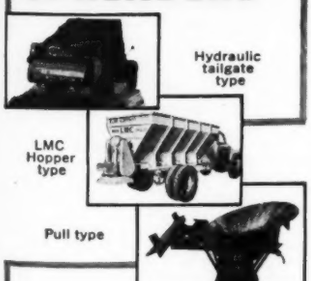
CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WISCONSIN

Stop in soon and see the production-boosting HD-11G at your Allis-Chalmers dealer's.

ALLIS-CHALMERS A-C

For more facts, use Reader-Reply Card opposite page 18 and circle No. 823

Before You Buy— Better See What **FLINK Offers in ICE CONTROL SPREADERS**



Check the Features on The New 1956 **FLINK Ice Control Spreaders**

Sold and serviced through reputable road equipment distributors

Dept. 5508

THE Flink Co. FLINK COMPANY STREATOR, ILLINOIS

For more facts, circle No. 822

Instead of sod being rolled in the conventional manner, it is loaded flat onto conveniently spaced pallets at the 220-acre sod farm by Evans Contracting Co., Ltd., Toronto, Ont. A Ford tractor with Sherman fork lift loads it onto trucks.

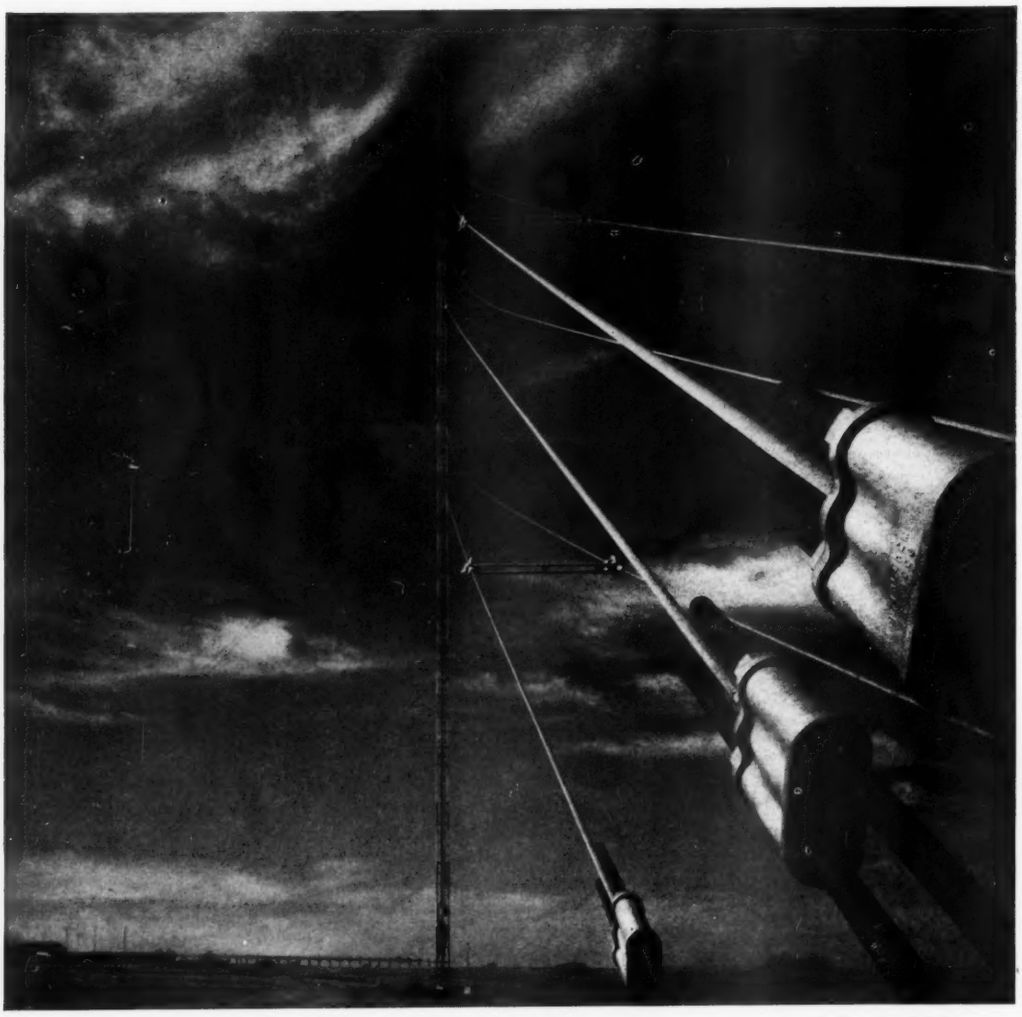
Machines take over to cut sodding time

A sodding procedure which eliminates the time-consuming job of rolling sod and then unrolling it at the landscaping site, the use of a wheelbarrow for transportation purposes, and the back-breaking labor involved in laying the material, has enabled Evans Contracting Co., Ltd., Toronto, Ont., to lay about 2,000 yards of sod daily for Toronto's Lake Shore Drive beautification project.

The pivotal machines in this operation are a pair of Ford tractors equipped with Sherman fork lifts. One machine handles pallets of sod at the firm's sod farm and loads them onto trucks. Another, at the job site, unloads trucks and delivers the pallets with their 50-yards of sod to the sod layers. Both machines have saved Evans money on this job because they have speeded operations, are able to go into wet or soft fields, and allow work to be done without interruption. Working costs have also been cut since less fuel is required for the fewer number of trucks needed in this souped-up operation.

Swift pickup and delivery

The work cycle starts when sod from the 220-acre sod farm—one of



Dresser-Ideco Co. designed and fabricated the steelwork for this greatest of the TV giants; Mizell Construction Co., Ganado, Tex., handled the erection.

Wire Rope at Work—The tallest structure ever built by man now pokes its spire through the Oklahoma clouds, rising like a giant steel needle from the surrounding plains. This is the television tower of Station KWTV, Oklahoma City—a landmark that measures 1572 ft from ground level to top.

So slim and graceful is the tower that, from a distance, it appears to be a delicate line penciled against the sky. Yet it weighs 1,323,392 lb—a vertical load that requires the sturdiest type of bracing. To guy the structure, the engineers employed 24 steel cables composed of Bethlehem strand, a member of the Bethlehem wire rope family. These tremendously strong guy lines, which range in diameter from 1½ to 2 in., have an aggregate weight of more than a hundred tons and a combined length of over five miles.

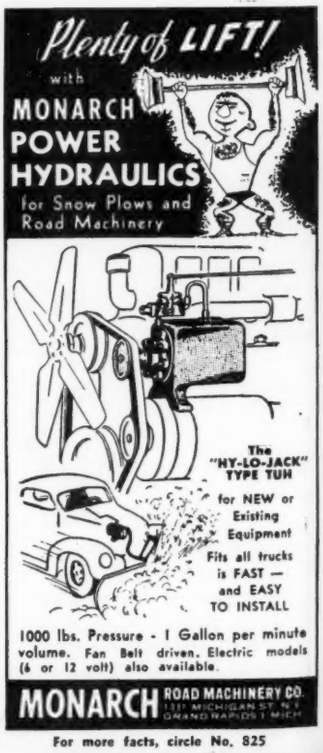
Bethlehem Steel Company, Bethlehem, Pa. On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

Mill depots and distributors from coast to coast stock Bethlehem rope for the following industries and numerous others:

CONSTRUCTION • MINING • PETROLEUM • EXCAVATING • QUARRYING • LOGGING • MANUFACTURING

BETHLEHEM WIRE ROPE BETHLEHEM STEEL

For more facts, use Reader-Reply Card opposite page 18 and circle No. 824



For more facts, circle No. 825

Trucks are easily unloaded by the fork lift, which deposits pallets loaded with 50 yards of sod at 10-foot intervals along the Toronto Lake Shore Drive. Sod layers only have to walk short distances to pick up sod.

Simplified handling of sod cuts costs and labor and permits crews to complete a mile of work daily

the largest in the Toronto area—is loaded flat onto pallets which have been distributed so that they are only a short distance from sod cutters. When a pallet is loaded with 50 yards of sod, the Ford tractor with Sherman fork lift moves in, picks it up, and loads it onto a truck. An average-sized truck is loaded in about six trips.

At the landscaping site, this process is reversed. A second fork lift unloads the trucks and distributes the pallets about 10 feet apart so that sodders only have to walk a few feet to pick up the flat pieces and drop them into place.

If too much sod has been deposited in one area, the tractor and fork lift merely comes along, picks up the extra pallet, and delivers it to an area where sod is needed. Whenever necessary, the fork lift is used to pick up the power roller, also on a pallet, and load it into the truck.

The procedure currently followed on the Lake Shore Drive job has been so successful that Evans will use it again shortly—this time to lay 180,000 yards of sod along the 25 miles of the Toronto By-Pass Highway.

THE END

BUILT TO YOUR needs from standard parts

15-HP SPECIAL PURPOSE HOIST
single fixed drum, worm gear drive

Meet your hoisting needs *precisely* at lowest possible cost. Call on our long experience in modifying and re-combining standard parts to meet specialized hoisting requirements.

Write for bulletins and catalogs

SUPERIOR-LIDGERWOOD-MUNDY CORPORATION

Main Office and Works:
SUPERIOR, WISCONSIN, U. S. A.
New York Office, 7 Dey St., N. Y. 7, N. Y.

For more facts, circle No. 826

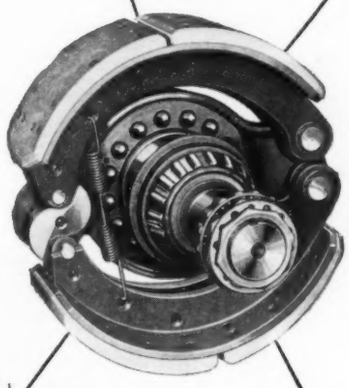
IF IT MOVES WE CAN STOP IT!

TDA BRAKES

...for every industrial or automotive application where braking is required!

P SERIES POWER BRAKES

designed for heavy-duty automotive service



These rugged, heavy-duty power brakes are designed to give longer troublefree service on trucks, truck-tractors, trailers, buses, trolley-coaches and industrial and road equipment.

Superior design has made Timken-Detroit's "P" Series brakes the undisputed choice of leading vehicle manufacturers everywhere. Friction and heat are reduced sharply, cutting the biggest cause of brake wear. Other important features of the "P" Series brakes offer increased economy and performance for operators.

"P" Series power brakes are available in a complete range of capacities and sizes. Either air or hydraulic action . . . to meet every operating need.

For additional information . . . with expert consultation, contact the Timken Brake Division. Complete details and specifications on the "P" Series brakes are available. And, a staff of highly experienced engineers can assist you with any brake problem that you may have.

Easy accurate brake adjustments
Slack adjusters permit quick, simple adjustments. When adjustment is made, spring-loaded lock automatically engages adjustment screw to prevent screw backing off during service.

Cooler running
Open-type, malleable iron brake spiders eliminate air pockets and assure adequate internal ventilation for cooler running.

Constant Lift "S" Type Cam
Constant lift "S" type cam assures uniform application of brake shoes for maximum sensitivity and controllability.

Longer liner life with "Econoliner"
Timken Detroit *Econoliners* are tapered to provide greater strength and thickness at the center where wear is greatest.

Better brake drums
Sturdy, rugged brake drums are designed to supply maximum rigidity with rapid heat dissipating ability.

TIMKEN Detroit BRAKES
TIMKEN-DETROIT BRAKE DIVISION
ROCKWELL SPRING AND AXLE COMPANY
ASHTABULA, OHIO
Accepted SAE Standard
TRADE MARK REGISTERED

Plants at: Detroit, Michigan • Oshkosh, Wisconsin
Utica, New York • Ashtabula, Kenton and Newark, Ohio
New Castle, Pennsylvania ©1955 R S&A Company

For more facts, use Reader-Reply Card opposite page 18 and circle No. 827

Pump rated at 40,000 gph has maintenance features

■ A new 4-inch water-cooled pump, the latest in the company's line of Dual Prime units to appear in the dual-volute design, has been announced by Construction Machinery Co., 447 Vinton St., Waterloo, Iowa. Rated at a pumping capacity of 40,000 gph, the unit is said to handle easily such jobs as dewatering excavations, cofferdams, sumps, or basements. It is also recommended for transferring or supplying liquids.

Powered by a Continental F-140 water-cooled engine which develops 30 continuous horsepower at 2,000 rpm, the new Model 40M has electric starter, battery, and generator as standard equipment.

According to the manufacturer, the 40M features exclusive CMC unitized construction, which simplifies maintenance by eliminating unnecessary parts; dual volutes, which provide rapid and dependable priming; and CMC Uni-Packed type self-adjusting shaft seal, which will accommodate pressure as well as vacuum. These and other features are said to provide the advantages of lighter weight, faster priming, higher capacity, and trouble-free construction.

For further information write to the company, or use the Request Card at page 18. Circle No. 708.

New diesel crawler tractor

■ The latest crawler tractor in the Oliver line, the OC-12 is the subject of a new booklet available from Oliver Corp., 400 W. Madison St., Chicago 6, Ill.

The new OC-12, in the 45-drawbar-horsepower class features greater horsepower and operator convenience, and a new heavier construction than is found in earlier models. It is available in standard 44-inch and wide-gage 60-inch track widths.

The booklet presents considerable detail on the new tractor's diesel engine, which has an exceptionally wide torque span. Among features covered are the engine's superior fuel mixing, precision fuel pump, trouble-free fuel-filter system, and full-pressure lubrication.

Other sections illustrate the tractor's construction features including a one-piece front frame; a heavy cast transmission and final-drive housing; rugged track frame design; and long-lasting tracks.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 624.

Clark division appoints

The construction machinery division of Clark Equipment Co., Benton Harbor, Mich., has a new purchasing agent in Daniel J. Youngerman. He was formerly assistant purchasing agent of Studebaker-Packard Corp., where for 12 years he was in charge of truck division purchasing. Prior to that, he was with the Bendix Corp.

New warning light for highway barricade

■ Highway barricades for use at job sites can now be rented equipped with a new dual-head warning light for nighttime use. The two-way barricade light is the newest addition to the line of rental equipment available from Neo-Flasher Mfg. Co., formerly Light Products, Inc.

The Neo-Flasher Model O-100 barricade light throws a wide beam in two directions. One 6-volt battery will operate the light continuously for 1,000 hours. Completely weatherproof, the light has a tamperproof switch and is fastened to the barricade with a device that prevents theft or vandalism. The light may be serviced without being removed from the barricade.

The Neo-Flasher barricade has a Scotchlite panel which reflects approaching headlights brilliantly. The galvanized pipe section and hip casting are cadmium-plated. Dimensions of the complete unit are 42½ inches long, 44 inches high, and 34 inches leg span.

For further information about the Neo-Flasher rental program, write to Neo-Flasher Mfg. Co., 3210 Valhalla Drive, Burbank, Calif., or use the Request Card at page 18. Circle No. 742.

For STRUCTURAL STEEL FRAMING

Build Faster...
Build Better...
with HIGH STRENGTH
BOLTS and MIL-CARB* Carburized WASHERS
*Trademark

According to leading authorities in modern Structural Steel Framing Practice, high tensile steel bolting of joints instead of riveting, offers erecting contractors and owners of such structures a number of definite advantages:

NO BOLT IS ANY BETTER THAN ITS WASHERS

- A bolted building or bridge can be completed sooner than a riveted structure.
- Hardened steel bolts, with hardened washers, can be torqued up to produce a greater clamping force than cooling of rivets can produce.
- High strength bolts of the same diameter may be substituted for rivets without reduction in size of holes.
- Your labor problem is simplified because of complete independence of field riveters.
- Bolted Construction is QUIET — especially desirable for building new wings to hospitals or for construction in "quiet zones".
- High Strength Bolts have higher strength than comparable rivets.
- High Strength Bolted Joints provide 25% higher fatigue resistance than comparable rivet joints.
- Bolted Construction is economical due to lower cost of structural jointing.

Build *better* and *faster* with High Strength Bolting of structural steel joints ... but remember that NO BOLT IS ANY BETTER THAN ITS WASHERS.

MIL-CARB Carburized Washers are fabricated from Prime Carburizing Quality Special Soundness Steel, insuring uniform quality control, always equal to the rigid specifications (ASTM Designations: A325, applying to nuts, bolts and washers).

MIL-CARB Washers overcome inherent weaknesses often present in heat-treated washers fabricated from steel of questionable quality.

For uniformly sound construction, specify MIL-CARB Carburized Washers.

Distributed by Leading Bolt Manufacturers and
U. S. STEEL SUPPLY DIVISION
United States Steel Corporation
208 South La Salle Street • Chicago 4, Illinois

WROUGHT WASHER MANUFACTURING CO.
The World's Largest Producer of Washers
2118 S. BAY ST., MILWAUKEE 7, WIS.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 828

ON-TIME MAINTENANCE REDUCES DOWN TIME EXPENSE

HOBBS HOUR METERS tell you at a glance when protective maintenance is due — the essential services that lengthen the life of your equipment and reduce repairs.

Not a Revolution Counter
The HOBBS HOUR METER is an electric timing instrument that shows HOURS and MINUTES of engine operation — important accuracy that no revolution counter can provide. It records running time on all types of powered equipment — stationary or mobile ... gasoline or Diesel.

Approved by Leading Manufacturers
Installed as original equipment or recommended as an approved accessory by leading construction equipment manufacturers. Ruggedly built ... easy to install. See your factory branch, representative or distributor ... or WRITE:

HOBBS *Engine Hour* METERS
New and improved through continuing engineering research

John W. Hobbs Corporation
2067 YALE BLVD. SPRINGFIELD, ILLINOIS
World's Largest Builders of Running Time Meters

For more facts, use Reader-Reply Card opposite page 18 and circle No. 829

Plan simplifies equipment leasing

■ A plan that enables contractors to lease various types of heavy construction machinery produced by different manufacturers in a single transaction has been announced by Morrison Plan, Inc., 814 Rand Bldg., Buffalo 3, N. Y. The simplified leasing plan makes it possible for the contractor to obtain needed equipment without tying up his working capital and without investing in equipment that may become obsolete in five years. Through this plan, the contractor can arrange to lease his equipment through a simple monthly-payment plan.

The prospective user selects the equipment, Morrison Plan purchases it for his use, and leases it to him, with all of the equipment written into a single lease.

An incidental but important advantage pointed out is that rentals paid become an item of expense, which is a decided advantage from a tax standpoint to the equipment user.

The Morrison Plan, is an outgrowth of a formula developed by R. L. Morrison two years ago to lease freight cars on a monthly-rental basis, at a per diem cost less than a railroad would have to pay to get cars from the AAR pool. This plan for leasing freight cars was an immediate success. During the initial two-year period of the Morrison Plan, more than 3,500 freight cars have been leased to railroads.

This leasing plan has now been extended to various types of construction machinery.

For further information write to the company, or use the Request Card at page 18. Circle No. 664.

Warehouse in Southeast opened by L. B. Foster

Faster service for southeastern customers of L. B. Foster Co., Pittsburgh, Pa., is promised with the opening of a six-acre warehousing area for fabrication and storage of steel sheet piling in Atlanta, Ga.

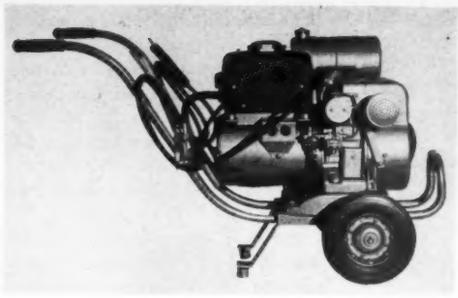
The opening of the warehouse located at 1200 Allene Ave. S. W., was preceded by the opening of the firm's Atlanta office at 805 Peachtree St. Paul A. Duke is the regional manager.

In a Hayward, there's no contact between the closing mechanism and the material handled. This "no contact" feature is a very important one to you—since it means much less wear, reduced upkeep, and a significant dollar-saving in bucket maintenance.

THE HAYWARD COMPANY
50 Church St., New York 7, N. Y.

HAYWARD BUCKETS
CLAM SHELL • ELECTRIC • ORANGE PEEL • GRAPPLES
famous for performance since 1888

For more facts, circle No. 830



The Royal Arc generator-welder combination is a portable source of ac power.

Generator-welder unit offers ac power source

■ A new portable ac generator-welder combination weighing only 250 pounds is announced by Royal Arc Industries, Inc., Chillicothe, Ill. Designed as a portable source of ac power, the unit combines the new Onan 205AJ-IM air-cooled 2,500-watt 115-volt 60-cycle ac electric generating plant with the Royal Arc Model 150AJ transformer-type welder.

The Royal Arc generator-welder is said to provide dependable electric power for welding, operating hand tools, or floodlighting the work area.

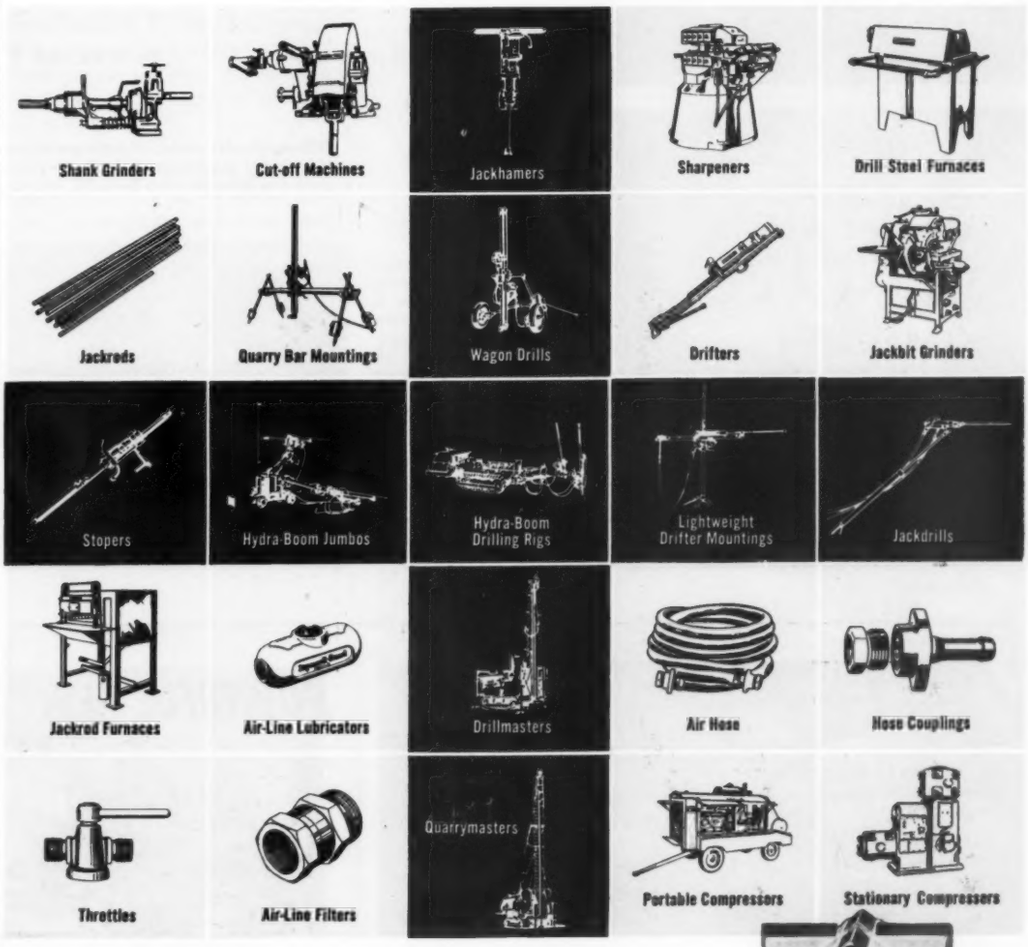
The generator or welder may be operated independently. By itself, the generator is a portable ac power plant; the welder may be plugged into any 110 or 220-volt single-phase ac source for repair or maintenance work.

The completely self-contained generator-welder combination is available mounted on a lightweight two-wheel dolly or a welded tubular-steel carrying frame.

For further information write to the company, or use the Request Card at page 18. Circle No. 687.

All property is raw material that has been shaped to uses by intelligent skill. —Henry Ward Beecher

the big **PLUS VALUE**



behind every I-R
CARSET JACKBIT

You can't drill rock with a *bit* alone. But behind every Ingersoll-Rand Carset Jackbit there's a COMPLETE LINE of rock drilling equipment.

Whatever you need for drilling rock — from the bit all the way back to the compressor — you can be sure that Ingersoll-Rand can help you. From one source with undivided responsibility you get a coordinated line of equipment that's designed and built to work together. You get complete *service*, too — backed by over 80 years of experience and leadership in the rock drilling field.

That's a big *plus* in your favor when you make Ingersoll-Rand your headquarters for everything in rock drilling.

Ingersoll-Rand
11 BROADWAY, NEW YORK 4, N. Y.

15-232

ROCK DRILLS • COMPRESSORS • AIR TOOLS • TURBO BLOWERS
CONDENSERS • PUMPS • OIL & GAS ENGINES

For more facts, use Reader-Reply Card opposite page 18 and circle No. 831

DISTRIBUTOR DOINGS

Ray MacDougall, president and chief salesman of the MacDougall Equipment Co., Binghamton, N. Y., is a dealer who knows both his equipment and his customers. Here he pauses for the camera while inspecting an Allis-Chalmers HD-16 tractor.

Business partner to her husband in the 16 years he has operated as a dealer in the southern part of New York State is Irene MacDougall, attractive and competent secretary and office manager of the firm.

An empty office: one dealer's success formula

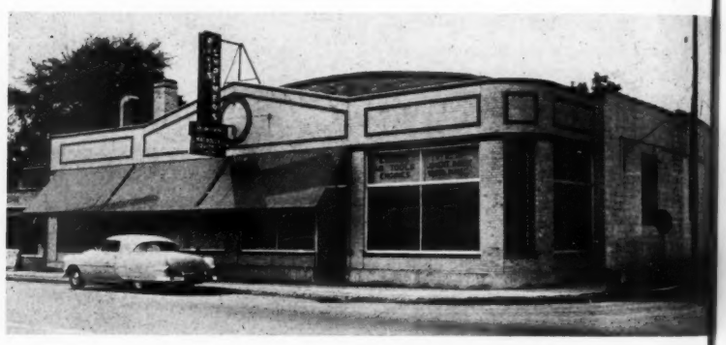
by WILLIAM T. DARDEN, assistant editor

The lettering on the office door spells out "Ray MacDougall, President". The signpainter might just as well have added "and Head Salesman". For the office is empty, and as likely as not the man whose name is on the door is out somewhere closing the sale of a piece of construction machinery.

The story behind this dual role is that of an equipment salesman who parlayed his experience, his knowledge of a particular sales territory, and his enthusiasm into an enterprising dealership serving 13 counties in the southern tier of New York State.

Now in its 16th year of operation, MacDougall Equipment Co., Inc., Binghamton, N. Y., is doing a continually growing volume of business representing Allis-Chalmers and seven other major lines of heavy construction machinery. In fact, business has progressed so nicely, thank you, that the firm has outgrown its present physical setup.

Besides the Allis-Chalmers line of tractors and other heavy earthmoving equipment, the firm also handles Chain Belt concrete mixers and pumps, Gar Wood earthmoving machinery, Le Roi compressors, American Chain & Cable wire rope, North-



Offices, a sales room, and the parts department are housed in the front part of the present MacDougall building, while the service shop is at the rear. The company has outgrown this building, and is giving thought to building new facilities. *C&E Staff Photo*

4-wheel drive does another job better!

TRANSPORTING WORKERS

Wherever the job may be, the 'Jeep' Truck gets there with men and equipment. With the extra traction of its 4-wheel drive, it goes through sand, mud, snow and roadless fields . . . up steep hills and other places ordinary vehicles can't go. On good roads it shifts easily to 2-wheel drive for conventional driving. See your nearest Willys dealer or write for information.

4-WHEEL DRIVE 'Jeep'® TRUCK

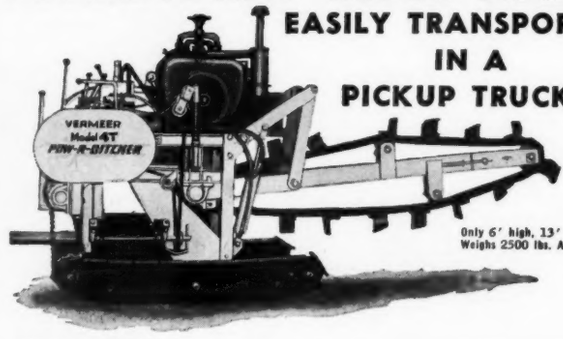
WILLYS...world's largest makers of 4-wheel drive vehicles

WILLYS MOTORS, INC., TOLEDO 1, OHIO

For more facts, use Reader-Reply Card opposite page 18 and circle No. 832

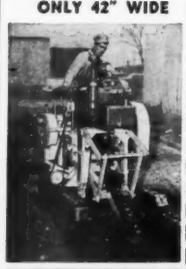
POWERFUL NEW "MIDGET DITCHER"

EASILY TRANSPORTED IN A PICKUP TRUCK



Only 6' high, 13' long. Weighs 2500 lbs. A real workhorse.

ONLY 42" WIDE

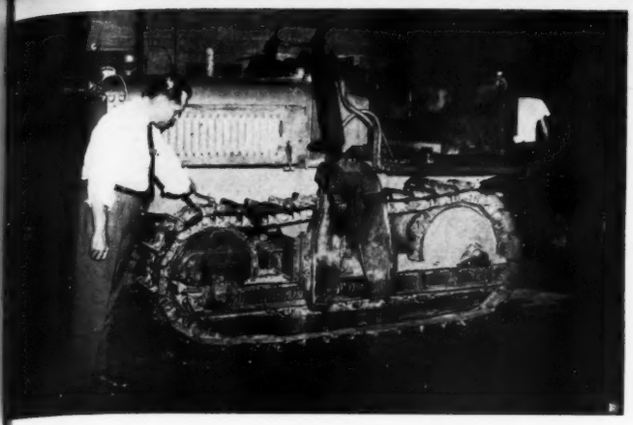


VERMEER MODEL 4T POW-R-DITCHER
Digs 6" to 14" Wide and 4½' Deep

Here's the "midget ditcher" they are talking about! The 4T POW-R-DITCHER is designed specifically for laying gas pipe, water and cable lines and digging foundation footings. Its narrow width makes the 4T ideal for those "tight spots." Digs at speeds of 1' to 17' per minute, depending on depth and soil conditions. Powered by a 15 or 25 h.p. Wisconsin engine. The 4T POW-R-DITCHER is built for service and answers the need for a small, rugged inexpensive ditcher. A self propelled and one-man operated machine. Has same size moving parts as larger POW-R-DITCHER models. **Write for name of distributor and complete information. Larger POW-R-DITCHERS models also available.**

VERMEER MANUFACTURING CO., PELLA, IOWA

For more facts, use Reader-Reply Card opposite page 18 and circle No. 833



◄ Gordon Hundt, vice president and general chairman of the MacDougall company, checks a reconditioned Allis-Chalmers Model K tractor in the service shop. Hundt is a former industrial representative for Allis-Chalmers. *C&E Staff Photo*

...ay MacDougall, president and No. 1 salesman of his own firm, ...elieves in personal contacts—and sets the example himself

west excavators, Oshkosh trucks, and La Crosse trailers.

Dollarwise, its business volume puts the MacDougall company in a category with the average equipment ment dealership as found throughout the country. The total personnel is 24. The eight major manufacturers whose lines it carries pretty well cover the field of heavy construction equipment.

And being average, this firm has the same experiences, problems, and rewards that come to equipment dealers everywhere.

Familiar territory

The 13 counties served by this dealer were already familiar territory when Ray MacDougall organized his company back in 1940. For 15 years prior to that time, he had covered the area as an Allis-Chalmers distributor's salesman. It was a logical step, then, for him to move from Horseheads, N. Y., where both he and his wife were born and grew up, to Binghamton in 1940 and open a dealership in the territory he knew so well.

His partner in all the years the firm has been operating has been Ray's wife Irene, an attractive brunette whose appearance belies both her age (she has been married 31 years) and her business competence.

In those very earliest years, Ray was president, manager, advertising director, and sales force of the company—and Irene was office manager and "parts man". Of course the parts inventory then was something less than the present total of nearly 10,000 items, but the job was still a full-time one. Today, as secretary of the corporation and office manager, she works full time to keep the busi-

(*Continued on next page*)

4-wheel-drive does another job better!

TRENCHING

This 'Jeep'-propelled trencher digs trenches up to 6 feet deep and 14 inches wide. Mounted on the 4-wheel drive 'Jeep', it gets to the job in a hurry, and speeds up the laying of pipe, cable or drain tile. Traveling speedily to the job, the unit is ready for trenching in a matter of minutes. Greater mobility makes the 'Jeep' trencher profitable for short trenches. See your nearest Willys dealer or write for information.

4-WHEEL-DRIVE UNIVERSAL 'Jeep'®

A member of the 'Jeep' family...world's largest-selling 4-wheel-drive vehicles

WILLYS MOTORS, INC., TOLEDO 1, OHIO

For more facts, use Reader-Reply Card opposite page 18 and circle No. 835

There's EXTRA PROFIT for you with this new

faster arc welding

Eliminates costly shut-downs, delays and expensive replacement parts. Keeps equipment working by making repairs right on the job.

Speed up your work by having your own Hobart Gas Engine Drive Arc Welder right on the job. Do your own steel erection, reinforcing or repair work without costly delays. Fabricate steel or make emergency repairs anywhere on a moment's notice. No need for power—a Hobart self-starting welder works independent of power source . . . and there's a size and type for every job.

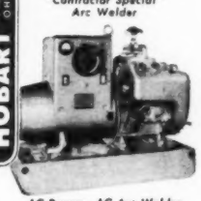
For extra heavy duty welding, many contractors favor the Hobart DC Gas Drive Welders that range from 300, 400 to 600 amp. capacities.

Other contractors like the combination AC Power—AC Arc Welder that furnishes power for welding or runs lights, tools, motors, etc., wherever and whenever it's needed.

The lightweight, easy to move "Contractor Special" is being found more and more on construction, pipeline, maintenance work. It gives "on the job" welding at low cost with a hot fast dependable arc. Has 1 KW DC auxiliary power for operating lights, tools, etc.

Heavy Duty Gas Drive DC Arc Welder, with many combinations of auxiliary power

"Contractor Special" Arc Welder



AC Power—AC Arc Welder Combination

Check and return the coupon today for complete details.

HOBART *"One of the world's largest builders of arc welders and welding equipment"*

HOBART BROS. TROY, OHIO WELDERS

★Tear off and MAIL TODAY!

HOBART BROTHERS CO., Box 895, Troy, Ohio, U.S.A. Phone 21223

Without obligation, please send information on items checked.

☐ DC Gas Drive Welders ☐ "Contractor Special"
☐ AC Arc Welder—AC Power Unit ☐ Electrode samples

for type of work_____

NAME_____ POSITION_____

FIRM_____

ADDRESS_____

For more facts, use Reader-Reply Card opposite page 18 and circle No. 834

IN COLUMBUS, OHIO...

Fabricating Steel is our Business

THE INGALLS IRON WORKS COMPANY

BIRMINGHAM, ALA. • PITTSBURGH, PA.

SALES OFFICES: Birmingham, New York, Chicago, Pittsburgh, Houston, New Orleans, Atlanta

For more facts, use Reader-Reply Card opposite page 18 and circle No. 836

The MacDougall parts department, manned by a well trained staff of three, has an inventory of nearly 10,000 parts for the eight major lines of construction machinery sold and serviced by the firm.

C&E Staff Photo

ness running smoothly. In this capacity, she works closely with Gordon Hundt, vice president and general manager, to relieve Ray of the business details of dealership operation. Mrs. MacDougall also set up the bookkeeping system currently used by the company.

Hundt, too, brought valuable experience to the MacDougall company when he joined the firm nine years ago. He had previously been an industrial representative for Allis-Chalmers in the east. And since the A-C line has been Ray's most important one since he founded the firm, Gordon Hundt was a natural for general manager.

Mrs. Norma Markoff, treasurer, completes the managerial roster. She has been with the company about 10 years, and is currently taking night courses in bookkeeping procedures to acquaint herself with up-to-date cost-record methods—something the company is beginning to apply to its everyday operation.

Departments

The MacDougall sales force includes, besides the firm president, three men who cover the 13-county territory. Perhaps because of his long experience as a salesman, Ray believes first and foremost in the personal contact as an aid to sales. The firm does comparatively little direct-mail advertising, relying rather on its salesmen to know its area and the needs of its prospective customers.

The personal approach, which Ray describes as "concentrating on the extras", gets the emphasis in this company's entire operations. "After all," says Ray, "a contractor can buy good equipment from any one of several dealers. It's the extras that make the sale for you".

The firm's parts department, manned by parts manager Emerson Newton and two assistants, stocks an inventory of nearly 10,000 parts for the equipment distributed by the company. The parts men know their job well: Newton spent several years as service manager to acquaint himself thoroughly with the equipment. Like other dealers, MacDougall is ready to furnish parts on short notice. Often this means calling out a man to go down to the shop at night and fill an emergency order.

Service is an important part of any dealer's operation, and MacDougall's 13 mechanics keep busy the year around repairing and rebuilding equipment. Arthur McFee is in charge of the well equipped repair shop, which has several repair bays, an engine room, a welding area, and a paint room. The seasonal slack in repair work caused by winter shutdowns in the field hasn't bothered MacDougall in the last few years, as a contract with the U. S. Army Corps of Engineers General Supply Depot at Schenectady, N. Y., gives the company a considerable amount of repair and rebuilding work on maintenance equipment.

Half a dozen Chevrolet pickup trucks are equipped with all kinds of repair tools for field service jobs.

With regard to repair work, Ray MacDougall doesn't believe in overextending himself. It doesn't pay, he declares, to accept too many repair jobs on equipment the company

Built to Last Longer on the Toughest Jobs!

GOODALL
CONVEYOR BELTING

"SUPER TRIPLE-S"

Conveyor Belting at its best . . . for super-severe service. Built to handle crushed stone up to 10" and other highly abrasive bulk materials, wet or dry, particularly on long center hauls where tension is high and extreme flexibility is required. Weather-resistant cover. Tensile strength, friction and other details determined by specific requirements.

"TRIPLE-S"

Designed for severe service but where weight of bulk material and length of carry do not demand "Super-SSS" quality. Recommended for crushed stone up to 6" or 8", abrasive ores, etc.

"LACROSSE"

A perfectly balanced, quality belt for all but the most severe conditions. Used for handling sand, gravel, shells, ashes, etc.

GOODALL MUCKER BELTS

"Wear King" Brand. Developed especially for use on Conway Mucking Shovels in tunnel excavating, and employed on most of the largest modern tunnel jobs.

GOODALL GRADER BELTS

"76" Brand. For many years, the Contractor's best assurance of long, trouble-free service on heavy-duty Elevator Road Graders.

Contact Our Nearest Branch for Catalog, Details, Prices

GOODALL RUBBER COMPANY

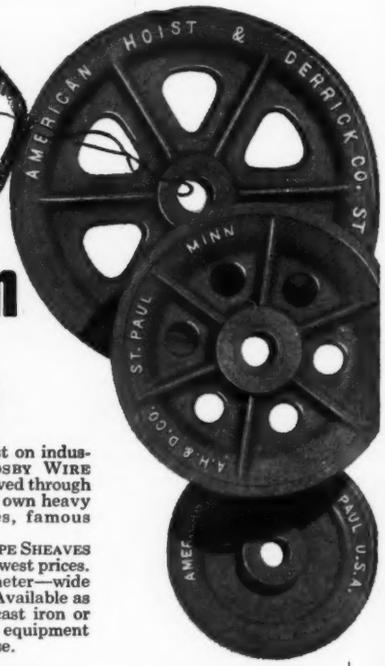
GENERAL OFFICES, MILLS and EXPORT DIVISION, TRENTON, N. J.

Branches: Philadelphia • New York • Boston • Pittsburgh • Indianapolis • Chicago • Detroit • St. Paul • Los Angeles • San Francisco • Seattle • Spokane • Portland • Salt Lake City • Denver • Houston • Goodall Rubber Company of Canada, Ltd., Toronto • Distributors in Other Principal Cities

Est. 1870

For more facts, use Reader-Reply Card opposite page 18 and circle No. 857

YOUR SAFE BUY!



AMERICAN CROSBY SHEAVES

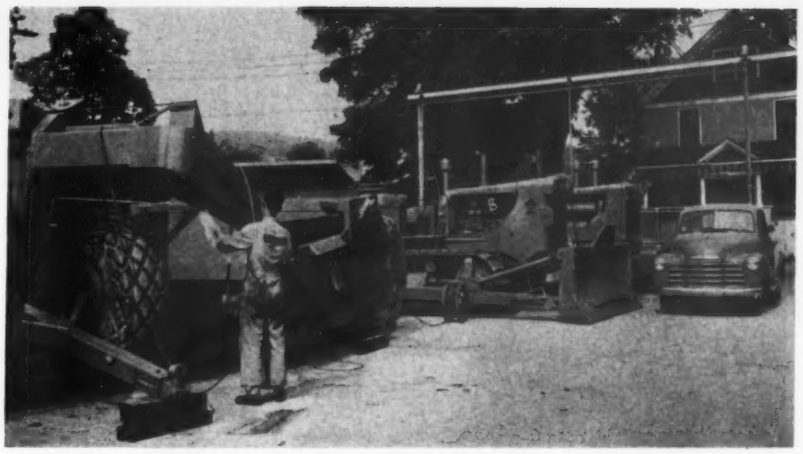
Where safety comes first, insist on industry's safest—AMERICAN CROSBY WIRE ROPE SHEAVES! Tested and proved through the years on American Hoist's own heavy duty construction machines, famous throughout the world.

AMERICAN CROSBY WIRE ROPE SHEAVES give you finest quality at the lowest prices. Sizes 4-inch to 4-foot in diameter—wide variety of bore and hub sizes. Available as finished or blank sheaves in cast iron or steel. See your construction equipment distributor or mill supply house.

CROSBY PRODUCTS DIVISION
AMERICAN HOIST AND DERRICK CO. St. Paul 1, Minnesota

For more facts, use Reader-Reply Card opposite page 18 and circle No. 838

In the MacDougall equipment yard, a painter has just applied an Allis-Chalmers decal to a reconditioned and newly painted C-315 scraper. New A-C HD-16 and HD-20 tractors are behind the scraper. At left is one of the Chevrolet pickup trucks used for field service. *C&E Staff Photo*



neither sells nor stocks parts for. "We service what we sell and sell what we service" might well be the motto for this company.

An interesting sidelight—and admittedly a plug for the manufacturer—is that Ray's shop is still servicing some of the A-C tractors he sold 15 or 20 years ago in the area.

Used equipment

Used equipment has always presented something of a problem to dealers in construction machinery. In a buyer's market such as today's nearly every customer has a trade-in. And there's the constant temptation to make an overallowance on old equipment in order to effect a sale.

Ray MacDougall has had enough experience to know that you can't have a cut-and-dried rule about trade-ins; circumstances vary in every case and there are often good reasons to make an overallowance on a piece of used equipment. Particularly is this true when a piece of new machinery is being sold in "virgin territory"; the advertising value of getting a new item out into the field may offset the overallowance made on the trade-in.

But generally, the firm doesn't fool itself with too generous an allowance on used equipment. As Gordon Hundt says, "an overallowance is as phony as a crooked golf score; you don't fool yourself and it's bound to boomerang on you".

The firm does a representative business in rentals of equipment, both large and small. The important rentals involve heavy equipment because these leases often result in sales.

As previously mentioned, the MacDougall company has outgrown its present facilities, which consists of an office-parts-shop building, a small storage building, and a crowded equipment yard. Although there are as yet no definite plans, a move to a new location—perhaps outside the city where future expansion will present no problem—is probably not too far off.

(*Concluded on next page*)

ROAD BUILDERS — IT'S SENSATIONAL

DRAGS **PECKERWOOD** DRAGS

STEEL SPRING WIRE ROAD BROOMS

MADE IN ANY C-O-N-T-I-N-U-O-U-S LENGTH UP TO 12 FEET
WIDTH 6 INCHES—IT'S DIFFERENT
ASSEMBLE YOUR OWN—IN ANY SHAPE REQUIRED—IN MINUTES, NOT HOURS

NO FRAME REQUIRED

MADE WITH KILN DRIED 6" WIDE HARDWOOD AND HEAVY SPRING STEEL WIRES TRIPLE OUT EACH HOLE. NOT STAPLE SET.

THIS IS IT — ORDER NOW

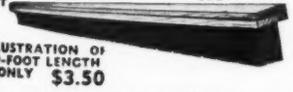


ILLUSTRATION OF 10-FOOT LENGTH
ONLY **$3.50**

RUNNING FOOT F.O.B. KC., MO.
NOTICE! Our 15" length Unit Drag 3" wide with the two bolts that fit your frame, still $2.50 ea.

SINCE **VAN BRUSH MFG. CO.** 1928
327 S. WEST BLVD., KANSAS CITY 8, MO.
For more facts, circle No. 839

ENGINEERED ESPECIALLY FOR TOUGH CONSTRUCTION DUTIES

performs on-the-job handling - faster - better - easier!

This new Prime-Mover built specifically for construction work provides practical answers to building contractors problems.

FOR EXAMPLE:

1 Length of only 64 inches and 31½ inch width permit easy maneuverability where more cumbersome equipment cannot go.

2 Compact size allows operation over the same ramps, runways, hoists and towers commonly used.

3 Positive controls let even the inexperienced laborer operate the unit safely and efficiently.

4 Interchangeable bucket and flatbed increases cost-saving usefulness

5 Dependable engine and proved transmission insure continuous service.

6 Recoil starter, large fuel tank, sealed-in lubrication, natural position steering bars, are added improvements.

These features and improvements mean a Prime-Mover that gives you ready-to-go power for handling any material — anywhere on the job. Prime-Mover distributors are ready to demonstrate. See yours or write us

A Prime-Mover will place 12 to 17 cubic yards of concrete per hour. 10 cubic feet per trip.

A Prime-Mover will haul up to 300 bricks direct from yard to bricklayer. 1500 lbs. per trip, up 20% grades.

PRIME-MOVER

THE PRIME-MOVER CO., MUSCATINE, IOWA

For more facts, use Reader-Reply Card opposite page 18 and circle No. 840

Mechanics work on an engine block in the engine repair room of MacDougall's fully equipped service shop.
C&E Staff Photo

Ray MacDougall believes strongly in the work of the Associated Equipment Distributors, and makes sure he gets to the annual meetings. The firm follows religiously the recommendations of this organization. Twice AED groups have conducted analyses of the MacDougall firm's operation, and in both cases the company has acted on suggestions resulting from the study. "We're happy to say, though, that for the most part they gave us a high rating," Ray reports.

Again like other progressive dealerships, MacDougall believes in introducing young blood into the company. Many of the employees came to the firm just after finishing high school, and have grown up with the company. Still others, like two armed services veterans recently added to the service department roster, are just starting out to learn the business from the apprentice level.

Ray himself, in the words of his wife, "works 24 hours day at the business". He isn't much for hobbies, but his wife sees to it that there is some social life to balance out the heavy working day. Each winter the couple takes some time out for a Florida vacation.

As for Ray MacDougall's success formula, it can probably be summed up in the word salesmanship. With expert assistants to handle the office details, this dealer concentrates on the aspect of his business that is fundamental to growth and profit-making.

Which is why the president's office at MacDougall Equipment Co. is empty more often than not. THE END

Winton E. Werckle, manager of the new Rockford, Ill., branch of Howell Tractor & Equipment Co., Chicago.

Werckle is manger of new Howell branch

Winton E. Werckle has been made manager of the new Rockford, Ill. branch of Howell Tractor & Equipment Co., 7443 S. Racine Ave., Chicago, Ill. He was formerly with LeTourneau-Westinghouse Co., and has nearly 20 years' experience in the heavy equipment business.

The branch is being operated from temporary facilities in Building 1640 on Warehouse Road, Rockford, pending completion of building plans. The Howell branch will provide sales, service, and rental facilities in eight counties in the Rockford area.

Dealerships are added by Clark Equipment Co.

Twelve new dealers are selling and serving the Michigan line of tractor shovels and excavator cranes made by the construction machinery division of Clark Equipment Co., Benton Harbor, Mich.

The newly appointed dealers are R. C. Larkin Co., 3001 S. Wabash Ave., Chicago; Lake Shore Engineering Co.,

NEW

B-68

LOADS **10 TONS** A MINUTE

Designed for high speed stone, sand and gravel production.

Handles up to 3,000 tons daily.

Easily loads largest trucks, no 'jockeying' under chute.

Hydraulic crowd, power steer and full hydraulic controls.

Heavy, rugged construction for trouble-free operation.

Weighs 38,000 lbs.—115 h.p.

Make Your own comparison!

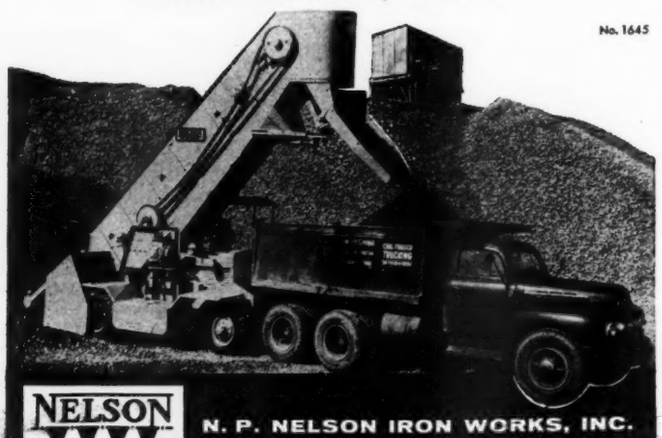
The B-68 will outperform any other type of loading equipment on any basis of comparison . . . Just check the chart below:

ALL MACHINES ON RUBBER TIRES	B-68 LOADER	SHOVEL	FRONT END LOADER	SMALL BUCKET LOADER
RATED CAPACITY*	8 yards	¾ yard bucket	1½ yard bucket	3 yards
LOADING CAP. PER MIN.*	8 yards	3 yards	3 yards	3 yards
LOADING OPERATION	Continuous straight line loading	Multi-swing	Multi-travel, turn	Continuous straight line loading
TRANSPORT SPEEDS	20 m.p.h.	20 m.p.h.	20 m.p.h.	6 m.p.h.
OPERATOR REACTION				

*at 100% efficiency

You Can't Afford Anything but a B-68 for High Capacity Loading
Write or Wire for Complete Details

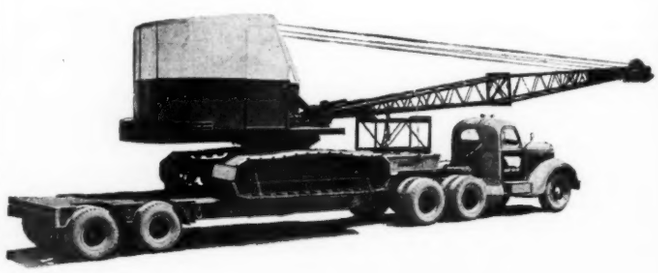
No. 1645



NELSON

N. P. NELSON IRON WORKS, INC.
CLIFTON, NEW JERSEY

For more facts, use Reader-Reply Card opposite page 18 and circle No. 841



MODEL GXTT

Gooseneck type, tandem axle, tilt trailer.

MODEL XTT

Tandem axle tilt trailer (tow type), capacities 13 through 20 tons.

MODEL T-8-18

14 or 18 foot length between the wheel tilt trailers. 8-10 ton capacity.

YOU CAN DEPEND ON

TRANSPORT TRAILERS

CARGO CARRIER MODEL GPX-F

Especially designed for safe, secure hauling of heavy cantilever loads. Capacities 16 through 35 tons. Exclusive TRANSPORT tandem axle assembly gives full oscillation of each axle over rough roads . . . adds extra mileage to trailer tires . . . reduces road shock transfer to payload. TRANSPORT semi-trailers fit single or tandem axle truck tractors. Flat deck as shown or drop deck.

FOR ADDED SERVICE . . .

Single or dual axle TRANSPORT front dollies convert semis to full trailers easily and quickly.

WRITE FOR COMPLETE INFORMATION

TRANSPORT TT TRAILERS INC.
CEDAR RAPIDS IOWA, U.S.A.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 842

1025 London Road, Duluth, Minn.; Highway Equipment & Supply Co., 5100 Paxton St., Harrisburg, Pa.; Shelton-Witt Equipment Corp., 2231 Patterson Ave., Roanoke, Va.; Mitchell Distributing Co., Inc., 5405 Hillsboro Road, Raleigh, N. C.; Regan Equipment Co., 333 Second Ave. N., Birmingham, Ala.; and two Montana distributors, Western Construction Equipment Co., 505 N. 24th St., Billings, and Miller Machinery Co., Highway 93S Missoula.

Others are Moss Equipment & Supply Co., 3100 E. Yellowstone, Casper, Wyo.; Columbia Equipment Co., 1240 Southeast 12th Ave., Portland, Oreg. An Alaskan distributor is Evans Engine & Equipment Co., Inc., 1230 Westlake N., Seattle. In Canada, J. H. Ryder Machinery Co., Ltd., 201 Main St. S., Winnipeg, covers the province of Manitoba.

Superior Cement Tool appoints distributor

The United Sales Co., Staten Island, N. Y., has been appointed an exclusive sales agent for the finishing machine made by Superior Cement Tool Co., Lynwood, Calif. The new distributor holds an exclusive franchise covering the eastern section of the United States and eastern Canada.

B-L-H dealers named in the southeast

Georgia and Mississippi distributors of Lima shovels, cranes, draglines, and Austin-Western crushing equipment have been appointed for the Construction Equipment Division of Baldwin-Lima-Hamilton Corp., Lima, Ohio.

The northern part of Georgia will be covered by General Machinery Corp., 1227 Marietta St. N. W., P. O. Box 196, Station D, Atlanta. Aldridge-Harbour Equipment Co., Inc., Highway 80 W., P. O. Box 2564, West Jackson Station, Jackson, Miss., will cover the southern half of the state.

Lively Equipment covers Southwest for Nordberg

Lively Equipment Co., Albuquerque, N. M., and its affiliate, Lively Equipment Co., El Paso, Texas, are distributors for Nordberg Power Chief diesel engines in New Mexico, the El Paso area, and northeastern Arizona.

The Albuquerque office, located at 2601 Fourth St. N. W., has about 15,000 square feet of floor space. The El Paso office, with about 5,000 square feet of floor space, is operated by Robert Mackey, a vice president of the company. D. Orton Smith is secretary-treasurer of the dealership.

All service work is contracted to the Lively Service Co., which is located just across the street from the main showroom in Albuquerque. Diesel engine repairs are supervised by C. P. Jones, who has about 30 years' experience servicing such equipment. The firm this year expanded operations to include an engine division, which is managed by Ralph Roller.

Tractors for "Deepfreeze" are made ready by dealer

One of the more unusual orders to flow through a dealer's office—an order for special equipment to operate in temperatures 65 degrees below zero—is currently being filled by Peterson Tractor & Equipment Co., San Leandro, Calif. This Caterpillar distributor is building nine Cat D2 tractors under a subcontract with Caterpillar Tractor Co., Peoria, Ill., for use by Rear Adm. Richard E. Byrd's Antarctic expedition which

(*Continued on next page*)

save ON YOUR COMPRESSED AIR JOBS!

USE THE SMITH 120-P COMPRESSOR

POWERED BY CHRYSLER INDUSTRIAL ENGINE

Be thrifty . . . *save* your big compressors for *big* jobs . . . then use the Smith 120-P for the majority of your compressor work. Heavy-duty Chrysler engine has 413 cu. in. displacement. Simple, compact compressor design—no coupling or clutch. Compressor pistons operate at 120° apart for smooth, even flow of air. Corrosion-free manganese bronze compressor valves with stainless steel discs. Finned aftercooler reduces air temperature approx. 200°, gives longer hose life!

. . . Also the Smith 75-P Compressor

MAIL COUPON FOR COMPLETE FACTS

GORDON SMITH & COMPANY, Inc.
483 College St., Bowling Green, Ky.
Send latest literature, prices on Smith 120-P and 75-P compressors.

NAME_____

ADDRESS_____

CITY_____ STATE_____

☐ Also send name of nearest dealer.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 844

Davey Rotary Drill on James E. Hoffman job near Karthaus, Pa.

cut drilling costs on every construction job!

DAVEY

Rotary Drills

On every big construction job, you can speed drilling . . . cut the costs of blast holes, structure testing, core drilling—with Daveys!

Davey Rotary Drills are suitable for mounting on any truck . . . move fast between jobs . . . are easy to set in drilling position. They are available in 6 different models—air blast, mud pump, or combination types. Rated capacities to 2,000 ft. Features include choice of power take-off or separate power unit operation, automatic hydraulic feed, hydraulic pull down, heavy-duty rotary table, rugged tubular box-type mast.

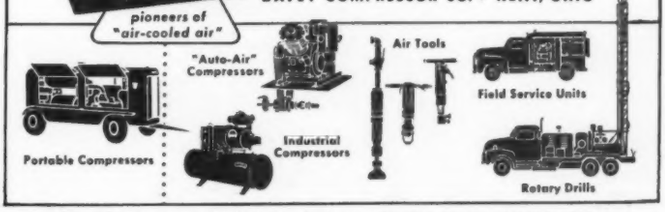
AA-17109

Write for full details!

DAVEY

pioneers of "air-cooled air"

DAVEY COMPRESSOR CO. • KENT, OHIO



For more facts, use Reader-Reply Card opposite page 18 and circle No. 845

White HEATING KETTLES

FOR *SAFER* MELTING OF BITUMINOUS MATERIALS

Tool Heaters
Surface Heaters
Special F-10 Compound Kettle
Torches and Burners

Capacities from 80 to 325 gallons. All equipped with *exclusive* FIRE PROOF TOP (hinged tops available for roofing use). Operator and equipment are *protected* from flash fires. Complete line of accessories optional. Choice of kerosene and propane burners.

White MANUFACTURING COMPANY

ELKHART 9, INDIANA

For more facts, use Reader-Reply Card opposite page 18 and circle No. 843

shoves off in November.

The 38 drawbar horsepower, low-ground-pressure machines will be used in the construction of runways in the Antarctic, as will two Seaman Roto Tillers equipped with Cat D318 engines. One of the D2's, and three of the D315's will be assigned to the weather station to be set up at the South Pole. This station is one of three planned by the United States. Other countries will set up stations in the area as part of the 1957–58 International Geophysical Year Scientific Studies program, which will coordinate observations in meterology, glaciology, geomagnetism, and cosmic rays.

The nine machines being built by the dealer—included in the 24 track type tractors which Caterpillar will supply for Winter Expedition Deepfreeze—will be painted bright orange instead of the usual yellow so that they will be easily visible against the snow. Ten of the crawlers being supplied by Caterpillar will be modified 155-drawbar-hp. D8 tractors, equipped with extra-long and extra-wide tracks, for use primarily on tractor trains. Four will have Hyster TLA8 cranes and the remainder will be equipped with hydraulic dozers. Three Cat D4 tractors, two standard D8's and 16 electric sets are also on order from the company. Right now, as the order is being filled, Caterpillar's service department is planning a training program for some 15 Seabees who will be operating and servicing the equipment at the bottom of the world.

General Road Machines building dealer network

General Road Machines, Inc., Niles, Ohio, a newly organized firm producing equipment for the construction industry, is currently arranging for an international force of distributors for its lines of concrete-finishing machines and paving forms.

Meanwhile five domestic dealers have been appointed to handle the firm's products in the midwest. They are Gil Boers Equipment Co., 7625 South Kedzie Ave., Chicago, Ill.; R. G. Moeller Co., 14415 Meyers Road, Detroit, Mich.; Frank McCaffery Equipment Co., 10702 Broadway, Cleveland, Ohio; Stephens Equipment Co., 818 S. W. Ninth St., Des Moines, Iowa; Hennessey-Forrestal Machinery Co., 705 Chestnut St., St. Louis, Mo.

Another new dealer, this one in the south, is Ray Long Equipment, Inc., 820 Blossom St., Columbia, S. C.

Dealerships set up by Huber-Warco

New firms have been appointed as outlets for the line of tandem rollers, three-wheel rollers, and graders made by Huber-Warco Co., Marion, Ohio.

In Arkansas, Euclid-Arkansas, Inc., 702 W. Second St., North Little Rock, will handle the line. The firm, little more than two years old, will soon move to more modern quarters at 711 Parker St., in Little Rock. R. A. Trippeer is head of the firm, and J. C. Mitchell and Elvin Phelps are vice presidents.

Foulger Equipment Co. will handle Huber-Warco products in Utah. The firm, located at 1361 S. Second W. in Salt Lake City, has B. L. Foulger as president and manager, W. D. Archer as vice president and sales manager, O. M. Foulger as treasurer, Fred B. Evans as secretary controller, and Donald E. Foulger as assistant secretary and treasurer.

C. S. Johnson dealers

Two new distributor appointments have been made by the C. S. Johnson Co., Champaign, Ill., a subsidiary of the Koehring Co., Milwaukee, Wis. Its line of concrete-batching and cement-handling equipment, including concrete and clamshell buckets, will be handled in northeastern Illinois by Gil Boers Equipment Co., 7265 S. Kedzie Ave., Chicago.

Andrews Equipment Service, Inc., 126 S. Walnut St., Spokane, Wash., will handle the equipment in the eastern half of the state and in the northern section of Idaho.

New Galion dealers

A complete parts and service department for Galion Allsteel dump bodies and hydraulic hoists, as well as a fully equipped body and hoist-

If you're a big contractor who wants a slice of profitable commercial work . . .

If you're a new operator who wants to be sure of beating competition . . .

TEAM UP these two low-cost Cedarapids plants

Here's a team that can't be beat for making yourself a nice slice of profit on small to middlin' jobs . . . the ones that can be a profitable sideline for established outfits. . . or which are sure-fire money-makers to give new operators a flying start in the business.

Your investment is low and your "take-home" is sizeable, because each unit is low in price but high on production. Teamed up, they keep you on top of the job, from gravel, pit or quarry to bituminous surfacing.

Cedarapids Built by IOWA

SINGLE PASS CRUSHING PLANT

The Single Pass Plant shown above produced 40 tons per hour of ¾" rock and gravel, 60 tons per hour of 1", and from 67 to 90 tons per hour of 1½" aggregate. That's the kind of production that lets small operators as well as big outfits make money on road maintenance work, city streets and alleys, small State contracts, base or blanket course jobs, and other jobs where portability and fast set-up are important.

The Cedarapids Single Pass is the most practical plant of this type available. It has plenty of screening capacity, and the hopper and feeder *on the rear end* let you back right up to the nearest gravel bank and start producing *two sizes* of material immediately. Simple design, with few moving parts, keeps maintenance costs low.

Cedarapids Built by IOWA

Model CM "COMMERCIAL" BITUMINOUS MIXING PLANT

Rated at 40 tons per hour, this Model CM "Commercial" Plant averaged 45 tons per hour! The peak production on the job was recorded at *47 tons per hour!* With this kind of output, Model CM owners are turning a tidy profit on jobs such as surfacing city streets, driveways, parking lots, playgrounds and other commercial type work.

The Model CM twin shaft mixing unit can be used alone to produce cold mix, or combined with a 4816 "Packaged" Drier for turning out hot mix or high type bituminous concrete. The use of a Model CGC Gradation Control Unit assures meeting strict State specifications accurately. Addition of a Model BH Feeder completes the set-up for highly profitable operations.

IOWA MANUFACTURING COMPANY
Cedar Rapids, Iowa, U.S.A.

FOR YOUR BIG JOBS BUY THESE CEDARAPIDS PLANTS

Double Impeller Impact Breaker

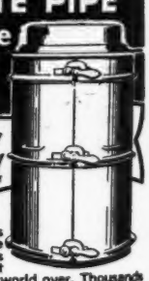
Hammermill Secondary and Portable Double Impeller Primary

Model G60 6000-lb. Bituminous Mixing Plant

For more facts, use Reader-Reply Card opposite page 15 and circle No. 846

For the FINEST CONCRETE PIPE You Need the FINEST FORMS!

THE "Quinn" Standard



Backed by over 40 years of reliable service, the QUINN STANDARD is recognized as the finest concrete pipe form the world over. Thousands of pipe manufacturers, from the smallest to the largest, look to Quinn for equipment to produce the finest concrete pipe at the lowest possible costs.

• **QUINN HEAVY DUTY PIPE FORMS**

For making pipe by hand methods by either the wet or semi-dry process. Sizes for pipe from 10" to 120" and larger. Tongue and groove or bell end pipe in any length desired. WRITE TODAY for complete information and estimate.

Also manufacturers of QUINN CONCRETE PIPE MACHINES

Quinn WIRE & IRON WORKS BOONE, IOWA

For more facts, circle No. 847

mounting shop are facilities available from the new Galion dealer, Miami Valley Truck Body & Equipment Co., Dayton, Ohio. The dealer, located at 1926 Home Ave., will cover west central Ohio for the Galion, Ohio, manufacturing firm.

E. Green and N. Cromes, co-owners of the dealer firm, will direct sales; Paul McClanahan is sales manager.

Wisconsin and the upper peninsula of Michigan will be covered by Atlas Truck Equipment & Bus Co., Milwaukee, Wis., for Galion Allsteel Body Co., Galion, Ohio. The dealer's headquarters, located at 126 S. Second St., has complete parts, service, and body-mounting facilities.

Distributors added by Stephens-Adamson

New authorized stocking distributors for the line of conveyor-belt idlers and return rollers, centrifugal loaders and pilers, car pullers, winches, and allied conveyor machinery have been appointed by the standard products division of the Stephens-Adamson Mfg. Co., Aurora, Ill.

The firms include two California dealers, S-A Products Co., 145 Mission St., San Francisco, and Stephens-Adamson Mfg. Co., 2227 E. 37th St., Los Angeles. Other firms include J. R. Banbury Equipment Co., 295 Saw Mill Run Blvd., Pittsburgh, Pa.; Southern Chemical Sales Co., Board of Trade Building, Louisville, Ky.; P. J. Hagerty Equipment Co., 800 S. Adams St., Peoria, Ill.; Wisconsin Bearing Co., 915 N. Market St., Milwaukee, Wis.; and Buffalo Rubber & Supply Co., Inc., 526 Niagara St., Buffalo, N. Y.

Dealer in Florida appointed by Pioneer

Neff Machinery, Inc., Miami, Fla., is the southern Florida distributor for the Continuflo line of mineral and aggregate-processing equipment and bituminous-mixing plants made by Pioneer Engineering Works, Inc., Minneapolis, Minn.

The dealer will serve Florida counties south of and including Charlotte, Glades, Okeechobee, and Indian River. P. A. Neff is president and sales manager of the firm, P. H. Neff, vice president and parts manager; W. T. Wheeler, secretary; F. H. Bowen, treasurer; W. A. Crane, comptroller; and William Thomas, service manager.

Pioneer, located in Minneapolis, Minn., is a subsidiary of Poor & Co., Chicago, Ill.

Cleaver-Brooks dealer

Ten Idaho counties, and all but five counties in the state of Washington will be served by a new Cleaver-Brooks dealer, Barrett & Yost Co., Seattle, Wash. The firm, located at 5600 14th Ave. N. W., Seattle, will handle the line of boilers, distillation equipment, and allied products manufactured by Cleaver-Brooks Co., Milwaukee, Wis.

Illinois Link-Belt dealer moves into new home

The modern headquarters of McAllister Equipment Co., a newly-formed dealer organization in La Grange, Ill., was opened last month at 1615 N. Mannheim Road in Melrose Park, Ill. McAllister is offering sales and service on the shovel-crane line made by Link-Belt Speeder Corp., Chicago, and a related line of contractors' equipment and supplies. The dealer is covering 19 counties in Illinois and Lake and Porter counties in northwestern Indiana.

E. C. McAllister, former vice president and sales manager of Patten Tractor & Equipment Co., Bellwood, Ill., is president of the dealership. H. B. Cadmus, the vice president, has also been with Patten.

LeTourneau-Westinghouse names California dealer

Ferguson - Blakemore Machinery Co., 9025 G St., East Oakland, Calif., has been made a distributor for the line of equipment made by LeTourneau-Westinghouse Co., Peoria, Ill., and by its Adams Division. E. M. Ferguson and John Blakemore head the dealer firm.

Butler Machinery serves South Dakota for Pioneer

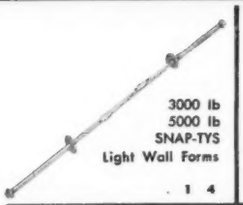
Butler Machinery Co., Fargo and Grand Forks, N. Dak., is distributing the Continuflo line of equipment made by Pioneer Engineering Works in the entire state. The company has main offices at 610 13th St., N. Fargo, and its branch office is on Route 81 S. in Grand Forks.

Pioneer Engineering Works, Minneapolis, Minn., is a subsidiary of Poor & Co., Chicago, Ill., and manufactures equipment for aggregate production.

The dealer firm is headed by Fran-

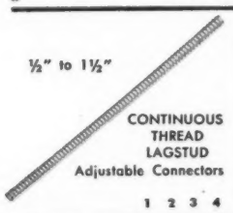
RICHMOND REFERENCE GUIDE FOR YOUR CONCRETE CONSTRUCTION NEEDS

CUT OUT AND FILE


3000 lb
5000 lb
SNAP-TYS
Light Wall Forms
1 4

½" to 1½"
2 STRUT
TYSCRUS
Heavy Wall Forms
1 2 3 4

1" to 1½"
4 STRUT
TYSCRUS
Mass Concrete Forms
2 3


½" to 1½"
CONTINUOUS
THREAD
LAGSTUD
Adjustable Connectors
1 2 3 4

½" to 1½"
TYLOOPS
Form Anchorage
3

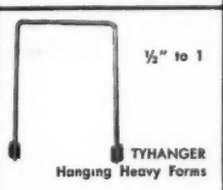
⅜" to 1½"
SCREW ANCHORS
AND BOLTS
Anchorage to Concrete
2 3

1¼" - 1½"
WHIRL-WIND
ANCHORS
(No Slip)
Lift Form Anchorage
3

¼" to ¾"
THREADED INSERTS
Fastening to Concrete
1 2 3 4

⅝" - ¾"
PEERLESS WEDGE INSERT
Shelf Angle Support
1

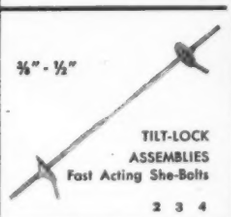
SNAP-TY
HANGER
Hanging Light Forms
1 4

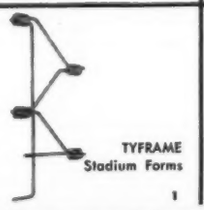

½" to 1
TYHANGER
Hanging Heavy Forms
1 2 4

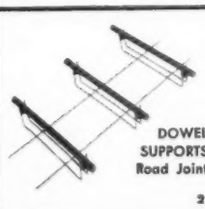
HANGER
FRAME SCREED
Form Hanging
and Screeding
2

ADJUSTABLE
SCREED CHAIR
Screeding Slabs
1 2 4

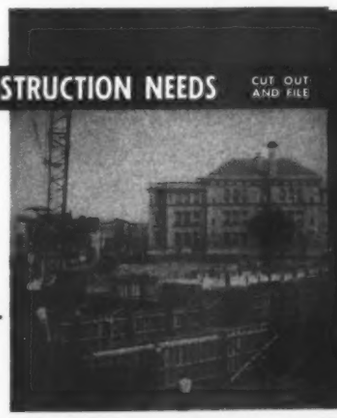
REINFORCING
BAR SUPPORTS
Steel Support
1 2 3 4


⅜" - ½"
TILT-LOCK
ASSEMBLIES
Fast Acting She-Bolts
2 3 4


TYFRAME
Stadium Forms
1


DOWEL
SUPPORTS
Road Joint
2

LOAD
TRANSFER
ASSEMBLIES
Airport Slabs
2


buildings 1

roads & bridges 2

tunnels & dams 3

water & sewage PLANTS 4

The above is a partial showing of the 358 items contained in the Richmond line of engineered concrete form-tying devices, anchorages and accessories—the largest line in the field. All items are designed for specific uses, not only for the fields pictured above but also for the building of *stadiums, grand stands, auditoriums, retaining walls, curtain walls, silos,* etc.

Whatever your concrete construction needs, contact Richmond. Richmond products are engineered to give you extra strength, ease of handling, utmost economy. Write for complete catalogue. If you have a specific problem, Richmond's Technical Division or field service men will be glad to submit drawings, engineering data and proposals. Address:

RICHMOND SCREW ANCHOR CO., INC. — 816 Liberty Ave., Brooklyn 8, N. Y. and 315 South Fourth St., Saint Joseph, Mo.

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SCREW ANCHOR CO., INC
816-838 LIBERTY AVENUE · BROOKLYN 8, N. Y.
315 SOUTH FOURTH ST · ST. JOSEPH, MO.

RICHMOND REFERENCE GUIDE FOR YOUR CONCRETE CONSTRUCTION NEEDS

cis J. Butler, and has E. V. Sandstrom as secretary and business manager, H. A. Hendrickson as sales manager, L. H. Dahlen as credit manager, and Lloyd W. Howard and W. H. Falconer as parts and service manager, respectively. The Grand Forks branch is managed by Clifford Lanning.

New Michigan dealer for Wooldridge line

The 35-year-old firm of Cyril J. Burke, Inc., Detroit, Mich., has been appointed an exclusive distributor of Wooldridge earthmoving equipment in the eastern half of the lower Michigan peninsula. The line of Terra Cobra scrapers and dumpers, as well as other equipment made by Wooldridge Mfg. Division of Continental Copper & Steel Industries, Inc., Sunnyvale, Calif., is available at 6451 E. McNichols Road.

Cyril J. Burke is president of the dealership. Other officials are C. John Burke, secretary; D. Russell Pierce, sales manager; Thomas J. Burke, assistant sales manager; Casper M. Yager, service manager; Fred G. Humig, shop foreman; Peter J. Neam, office manager; C. O'Rourke, parts manager.

Acme Iron Works dealer

A new California dealer for Acme Iron Works, San Antonio, Texas, is West Coast Engine & Equipment Co., Berkeley. The dealer, located at 1077 East Shore Highway will handle Acme's line of Ingram rollers.

The Lindsay Model 80 gasoline-driven air compressor delivers 80 cfm for operating heavy concrete breakers.

Small air compressor is gasoline-operated

■ A gasoline-driven air compressor that may be moved by one man or towed behind an automobile is offered by the P. K. Lindsay Co., 97 Tileston St., Everett 49, Mass. The machine is recommended for operating hand tools and rock-drilling units, and for other applications.

The Lindsay Model 80 compressor delivers 80 cfm and uses 15 to 20 gallons of gasoline a day. A Wisconsin VG4D air-cooled four-cylinder engine powers the unit, which is also equipped with stellite exhaust valves, an adjustable speed governor, automatic unloading with engine slow-down, electric starting, and torsion-spring axle.

The Model 80 is 52 inches high, 58 inches wide, and 90 inches long. Weight is 1,275 pounds. The compressor is enclosed in a heavy 14-gage steel housing.

For further information write to the company, or use the Request Card at page 18. Circle No. 730.

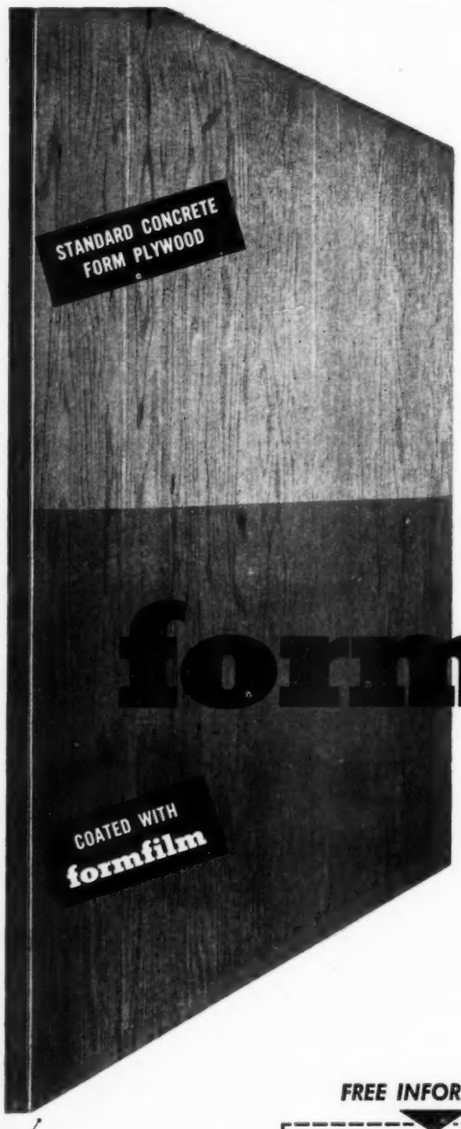
No costly re-coating between pourings

Forms strip easily

Eliminates costly rubbing of oil stain and grain marks

Leaves concrete clean, smooth . . . ready for decorating

Not an oil . . . eliminates slip hazards



How to get more than 10 re-uses from plywood forms!

Coat them with

formfilm

Protect your investment in plywood forms with FORMFILM. It's a tough, abrasion-resistant, alkali- and water-resistant coating (not an oil). Eliminates raising of wood grain and reduces honeycombing.

A Subsidiary of Sun *Chemical Corporation*

HORN

A. C. Horn Co., Inc.

Manufacturers of materials for building maintenance and construction since 1897.

FREE INFORMATION!

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Long Island City 1, N. Y.

Please send Money-Saving Facts on FORMFILM.

Name _____ Title _____

Firm Name _____

Address _____

City _____ State _____

DIVISIONS OF SUN CHEMICAL CORPORATION

HORN • HUDSON • WILLEY (paints, maintenance and construction materials, industrial coatings) • WARWICK (textile and industrial chemicals) • WARWICK WAX (refiners of specialty waxes) • RUTHERFORD (lithographic equipment) • SUN SUPPLY (lithographic supplies) • GENERAL PRINTING INK (Sigmund Ullman • Fuchs & Lang • Eagle • American • Kelly • Chemical Color & Supply Inks) • MORRILL (news inks) • and ELECTRO-TECHNICAL PRODUCTS (coatings and plastics)

For more facts, use Reader-Reply Card opposite page 18 and circle No. 849

FOUNDATION CONSTRUCTION

CAISSONS
SHAFTS
DRILLED AND UNDERREAMED
PIERS

SPECIAL DRILLING PROBLEMS

Wire or phone for a quotation on your next foundation job —

Offices in
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DRILLING COMPANY
NACOGDOCHES, TEXAS
Phone: 4-8373 • P. O. Box 190

For more facts, circle No. 850

The Gen-A-Matic all-aluminum self-priming centrifugal pump.

Aluminum pumps feature capacities to 22,000 gph

■ A line of lightweight all-aluminum centrifugal pumps has been introduced by Multi-Matic Corp., 14741 Bessemer St., Van Nuys, Calif. These Gen-A-Matic self-priming pumps are offered in four models: a 1½-inch unit that pumps 6,000 gph; a 2-inch pump that delivers 8,000 gph; a 2-inch unit with a larger impeller and greater engine power, giving it a capacity of 12,000 gph; and a 3-inch pump with 22,000-gph capacity.

According to the manufacturer, these pumps are priced in a class with similar units, but are capable of delivering 10 to 50 per cent more horsepower for their capacity. The Gen-A-Matic centrifugal pumps are said to have several special features, including a unique wearplate assembly, held by bolts, that is easily replaced from the front. This feature reportedly effects considerable savings in layup time when the wearplate is replaced.

A spring-loaded mechanical seal binds the specially designed "swirlpool" impeller, so that leakage is eliminated. The impeller requires little or no maintenance throughout a lifetime of normal use, it is claimed. The special interior design of the pump and the impeller are engineered to promote a friction-free non-turbulent flow of water under all conditions. For stability in operation, pumps are mounted on Neoprene pads.

For further information write to the company, or use the Request Card that is bound in at page 18. Circle No. No. 701.

Tracks add flotation to rubber-tire vehicles

■ Tracks that can be placed over rubber tires to give wheeled equipment added pulling power and flotation are illustrated in a folder from Keck-Gonnerman Co., Mt. Vernon, Ind. The literature shows both single and dual Tire-Track assemblies, which are available in a range of tire sizes from 6.00×17 to 18.00×26.

Wheel-mounted equipment illustrated with the tracks installed include a light excavator, truck-mounted crane, grader, truck, and pipeline kettle.

Under average conditions, the Galanot Tire-Tracks can be placed on a vehicle in about 30 minutes and removed in 5 minutes.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 668.

Lawrence made manager of new A-C district

A new sales district, with headquarters in the Kingswood Building, Columbus, Ohio, has been placed under the management of Walter B. Lawrence by Allis-Chalmers Mfg. Co., Milwaukee, Wis. Mr. Lawrence joined the company in 1934, and has been a sales representative in the Cincinnati district office since 1943.

TOURNATRACTOR is a 208 hp tractor that runs on rubber instead of crawling on tracks.
Since its introduction in 1946, this electric-controlled tractor has been used successfully in every kind of climate, terrain, material, and on every type of tractor application, all around the world, by thousands of owners.
Their job records prove that Tournatractors can outwork crawler-tractors by as much as 2 to 1 where job conditions allow the use of its higher speeds.
Remember, too, that for this extra speed and greater production capacity, plus all the other "bonus" Tournatractor advantages described below, you invest no more, and pay less for operation and maintenance, than for any crawler-tractor of similar power.
Does speed fit your job?

Check these advantages . . . ask for proof!

Speed on the job...
Tournatractor pulls, dozes, pushes at speeds 2 to 3 times faster than any crawler. You change gears instantly, waste no time shifting, go up to 8 mph in reverse.

Mobility between jobs...
Tournatractor travels job-to-job at speeds to 19 mph. Big, low-pressure tires drive anywhere—you need no planking or trailers—have no loading or unloading delays.

Lower maintenance...
Lubrication takes only a few minutes a shift on Tournatractor as compared to 15 minutes or more on a crawler. No cleaning of tracks, grousers, and other fittings.

Fewer repairs...
A set of tires or tracks costs about the same. But tires last 2 to 3 times longer than tracks under most conditions . . . without the usual maintenance expenses.

Ample flotation, traction...
Each tire grips area approximately 2 feet wide. Lugs bite deep to give plenty of traction. Low-pressures increase flotation, absorb shocks, aid compaction.

Less loss of power...
208 hp diesel drives through dirt-sealed anti-friction bearings to free-rolling wheels. All gears and bearings automatically lubricated . . . all parts easily accessible.

Shifts instantly...
Constant-mesh transmission eliminates delays in changing gears . . . saves vital momentum . . . gives you any gear ratio instantly.

Torque converter available...
This simple, dependable, low-pressure system provides the equivalent of an infinite number of gear ratios automatically selected to best balance load and torque.

Easier to operate...
Less jolt and jar reduces stress and strain on both operator and machine. Fingertip electric controls let operator work faster, with less end-of-shift fatigue.

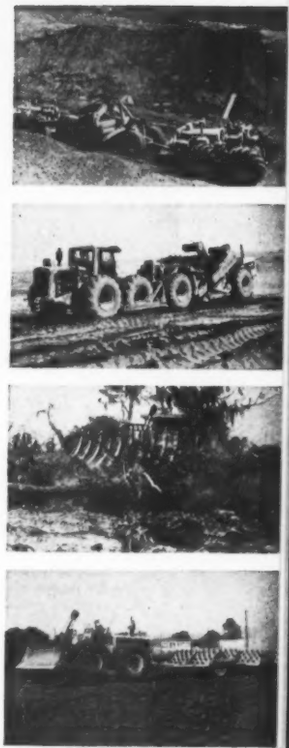
Improves safety...
Low center of gravity, all-around visibility, quick response of controls make Tournatractor exceptionally safe to operate. Multi-disc air brakes have more than *4 times* the braking surface of most big tractors and trucks.

Interchangeable equipment...
Bulldozer, Angledozer, Root Rake, Snow Plow—all interchangeable—may be mounted on Tournatractor. Tilt mechanism and down-pressure attachment also available.

Easy to keep busy...
All kinds and all makes of drawbar equipment can be pulled by Tournatractor. It can also be equipped with push-block, logging winch, or tree-pusher. It goes anywhere there is work to do.

Call or write us for a Tournatractor demonstration on your job. See for yourself the advantages of this versatile, high-speed, rubber-tired tractor.

Tournatractor—Trademark T-733-G-b



FREE . . . A new 28-page book, showing all the ways Tournatractor will increase your production while lowering your costs. To get your copy, simply fill out coupon. Mail today to LeTourneau-Westinghouse Company, Peoria, Illinois. There is no obligation.

Send to: LeTOURNEAU-WESTINGHOUSE COMPANY, Peoria, Ill.

Your name _____

Title _____

Company _____

Address _____
Street, City, State

T-733-G-b

For more facts, use Reader-Reply Card opposite page 18 and circle No. 852

TRANSITS AND LEVELS

You will find the best bargains at Warren-Knight. New or rebuilt—for sale or for rent—We will buy or trade your used transits, levels, alidades, etc. Send your instruments for valuation.
Write for free catalog EC-57 of instruments, field equipment and drafting room supplies.

Send for free Catalog EC-59

WARREN-KNIGHT
136 NORTH 12TH STREET PHILADELPHIA, PA.

For more facts, circle No. 851

CONSTRUCTION CAMERA

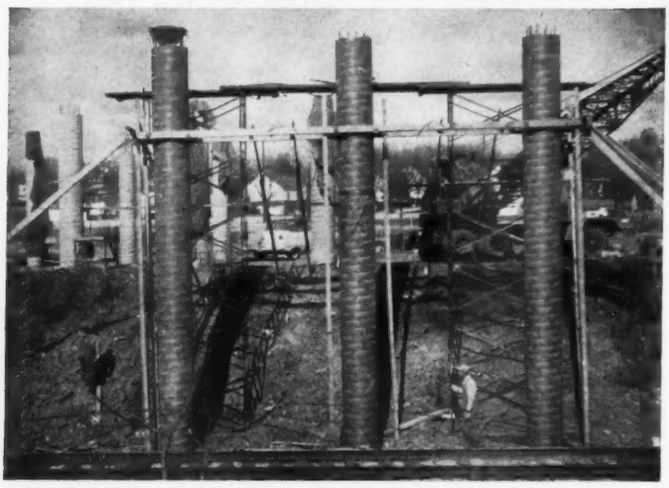
Stripping of sod and topsoil at the site of a new maintenance hangar at Hector Field, Fargo, N. Dak., is handled by Roel Construction Co., Inc., Fargo, with a Hough Payloader. A base of filter gravel will be laid over the compacted base and under the concrete slab which will form the floor of the structure.

Scheduled for tests is this hydraulically operated 16-foot boom and A-frame, which the U. S. Army Corps of Engineers at Fort Belvoir, Va., has developed for unloading bridge sections from trucks. The rig, eliminating the need for a crane, unloads its own and other trucks and can work from the vehicle's front bumper in the field.

SONOTUBE®

FIBRE FORMS

for round columns of concrete



Railroad and Highway Overpass, near Kansas City, Kansas. State Highway Commission of Kansas, Bridge Department, designers L. G. Barcus & Sons, Contractors.

Round column piers save money!

. . . low cost SONOTUBES® make it possible

This railroad and highway overpass, designed by the Bridge Dept., State Highway Commission of Kansas is supported entirely by round columns of concrete formed by low cost SONOTUBES. Another Sonoco product, SONOVOID, was used in the construction of the bridge deck.

SONOTUBE Fibre Forms are particularly well suited for use with elevated structures of all types because they can be sawed to specific lengths on the job to fit the profile of the ground surface. SONOTUBES save time, labor and money . . . require minimum bracing.

Low cost SONOTUBES are available in 26 sizes, from 2" to 36" I. D. up to 50' long.

Use Sonoco's patented "A-coated" Sonotubes for finished columns; wax coated also available.

See our catalog in Sweet's

for complete technical data and prices, write

SONOCO PRODUCTS COMPANY
Construction Products Division
LOS ANGELES, CAL. — HARTSVILLE, S. C. — MAIN PLANT — MONTCLAIR, N. J.
AKRON, IND. — BRANTFORD, ONT.

sonoco SERVES THE WORLD PAPER CARRIERS
REG. U.S. PAT. OFF.

MEXICO: Sonoco de México, S. A., Apartado 10239, México, D. F.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 853

Pennsylvania highway map serves triple purpose

The 1955 official road map of Pennsylvania just issued, showing main highways in red, other roads in blue and gray, and containing data on forest lands, parks, and game reserves, is the result of a joint effort of the Departments of Highways, Forests and Waters, and the Game Commission.

The Pennsylvania Turnpike, with all interchanges, is mapped from the Ohio border to the Delaware Valley Interchange at U. S. 13. Highways in surrounding states that appear on the map are brought up to date, and a section of the New Jersey Turnpike and its intersections and the Ohio Turnpike and its connection with the Pennsylvania toll road are shown. Construction projects now under way are marked in small blocks.

Principal cities and towns are keyed for ready reference, and both the face of the map and city maps on the reverse side show completed bypass routes around such places as Allentown, Easton, Bethlehem, Lancaster, Harrisburg, and Blairsville. These large-scale drawings also show routes through 35 cities in which traffic difficulties have been encountered.

One of the features of the map is the marking for state forest land, game land, game farms, fish hatcheries, roadside rests, airports, state and historical parks, and forest monuments and picnic areas. A guide to public recreational areas, also on the reverse side, indexes facilities for bathing, boating, camping, etc.

The map, in the popular accordian fold so that it can be opened to one particular section without being unfolded entirely, is being distributed without charge by motor clubs, tourist agencies, hotels, state police stations. It can also be obtained by writing the Pennsylvania Department of Highways, Harrisburg, Pa.

IT'S NEW!

Famous "**TRIPLEX**" Has a New **NARROW** Ditch Tamper that Backfills...

FASTER — TIGHTER — EASIER

Now, one tamper man can do a 5-man job, yet work safely from surface level! The NEW "Triplex" Ditch Tamper has newly-designed handlebars—adjustable both *vertically* and *horizontally!* Real Power—Easy Operation in trenches as narrow as 10", as deep as 5'.

All this PLUS:

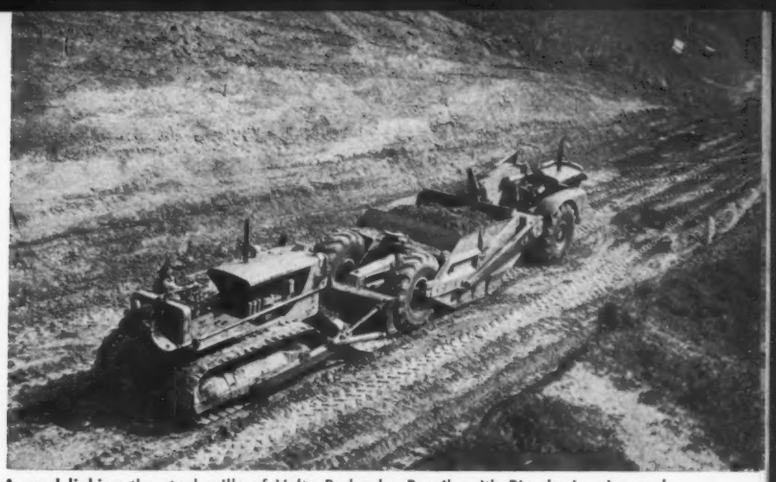
1. Highest compaction to any density on *all* soils.
2. Exclusive air filter.
3. Positive and correct manifolding of air.
4. Horizontally swinging, swivel air-intake.

Write for "Compaction Handbook" and further information on the NEW "TRIPLEX" Ditch Tamper

GUNDERSON-TAYLOR MACHINERY COMPANY
1237 Shoshone Street • Denver 4, Colorado

For more facts, use Reader-Reply Card opposite page 18 and circle No. 854

This rock excavation in the stilling basin at Oahe Dam near Pierre, S. Dak.—a total of 114,000 yards—is being handled by this Manitowoc 2000 trenchoe. The rig and four Ford 5-yard dump trucks account for more than 950 yards of shale moved from the site every 10-hour shift.



A road linking the steel mills of Volte Redonda, Brazil, with Rio de Janeiro and Sao Paulo is being carved almost 90 miles through the mountainous country separating the cities. A spread of Caterpillar equipment is handling the job. In this cut, a DW21 with No. 21 scraper is push-loaded by a Cat D8 with bulldozer.

Various road problems treated in HRB booklets

Among new publications issued by the Highway Research Board is "Roadside Development, 1955," which contains reports on studies of erosion control on extremely sandy soils in New Jersey, and reports on a continuing study of mowing and herbicides.

Papers included in the booklet treat seeding and emulsified asphalt mulching in North Carolina, fertilizing and seeding with compressed air, and slope stabilization on the West Virginia Turnpike. A progress report of the committee on mowing and herbicides, and a paper on roadside design to reduce traffic noise, dust, and fumes are also included among the papers presented at the annual meeting of the committee on Roadside Development earlier this year.

Other HRB publications are "Bituminous Paving Mixtures—Fundamentals for Design," Bulletin 105, and "Manpower Needs in Highway Engineering," Bulletin 106. The former discusses the uses and types of bituminous mixtures, together with procedures for designing mixtures to meet requirements. There is a lengthy section on variations in aggregates and the effects of variation in bitumen on mixes.

The booklet on engineering personnel reports on a 1954 canvass of state and municipal highway departments, toll-road authorities, and consulting firms to ascertain the needs of each for highway engineers. One of the papers discusses the practice of employing the services of private engineering firms by state highway departments, the cost of such service, and the problems involved in the practice.

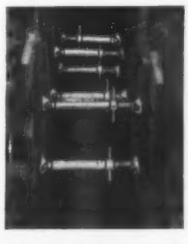
"Roadside Development, 1955" is priced at 90 cents, Bulletin 105 at 75 cents, Bulletin 106 at 60 cents. All three may be obtained from the Highway Research Board, 2101 Constitution Ave., Washington, D. C.

Doing It the Easy Way with SIMPLEX JACKS...

PRESTRESSING CONCRETE SLAB with a Simplex Re-Mo-Trol 30-ton hydraulic puller. When cured, 26' x 38' slab will be raised to form third story floor of school building. Intervening floors will then be cast, prestressed and raised into position. Only Re-Mo-Trol gives straight-line pull to prestressing wires through unique "center-hole", eliminates need for complicated back-up devices. Also has many uses as a powerful lifting jack on construction jobs.

15-TONS OF LIFT on either the cap or toe of this Simplex Model 24A jack is a feature that construction men like. Full capacity toe lets them lift from minimum clearances, cuts wedging and blocking necessary. Jack is ratchet lowering lever type; raises or lowers notch-by-notch —can't be tripped. 13" of lift.

TIMBER "STRETCHER" speeds shoring on foundation and tunneling work. Simplex Shoring Jacks, available in 25-ton or 35-ton sizes, are faster and safer than old-fashioned saw and wedge methods.



WHEN YOU'RE DOWN A HOLE you can feel safe with these Simplex Trench Braces on the job. Made entirely of drop forged steel. Easy to adjust, grip at any angle, can be nailed to timber for slip-proof safety. For any width trench.

SIMPLEX CONSTRUCTION JACKS are fully described in General Catalog 53. Write for a free copy.

WORLD'S LARGEST MAKERS OF INDUSTRIAL MECHANICAL AND HYDRAULIC JACKS
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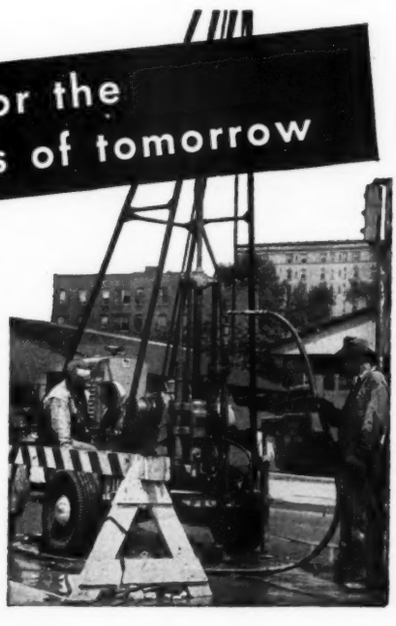

When it's better to be safe than sorry, engineers investigate underground conditions. And, that's exactly what this Acker TH drill is doing — drilling test holes over a walled-up section of the old Erie Canal preparatory to building an overhead express highway.

For low-cost, dependable sub-soil information, try an Acker on your next job. Several models available with power and type of mounting to best serve your requirements.

Write today for prices and Bulletin 30, C&E.

ACKER DRILL CO., Inc. 725 W. Lackawanna Avenue Scranton, Penna.

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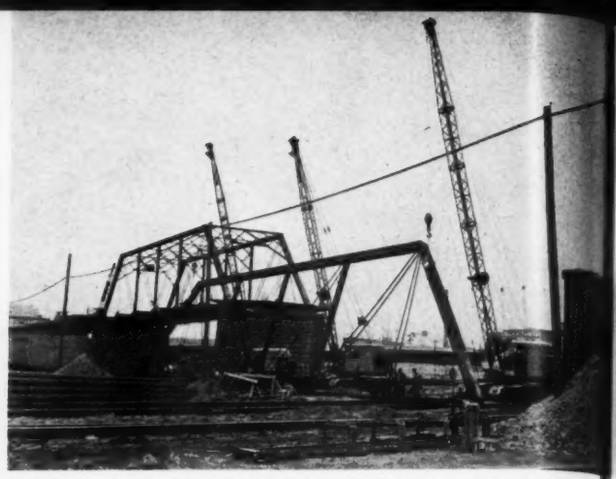
CONSTRUCTION CAMERA

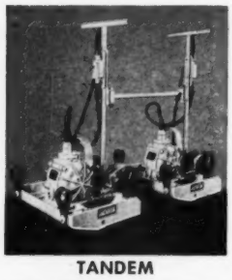
Backfill for a culvert trench being constructed in the outskirts of Milwaukee, Wis., is placed by a self-powered Bucyrus-Erie Hydrocrane equipped with the recently developed dual-ram clamshell bucket. This trenching operation is being done by the Milwaukee, Wis., firm of Tomasini Contractors, Inc.



Elimination of a bottleneck on U. S. 6 in Lincoln, Nebr., is the objective of work on the old "O" Street viaduct over the Union Depot railroad yard. When the three Lorain 50 cranes finished dismantling the outmoded crossing, a $3 million four-lane span will be erected at the site.

JACKSON
TWIN-COMPACTOR UNITS

SPEED PROGRESS - CUT COSTS!

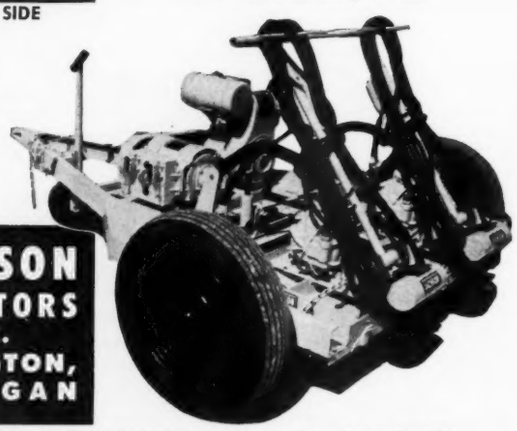


TANDEM

SIDE BY SIDE

The Jackson Vibratory Compactor, which has proved so exceedingly effective in blacktop pavement widening and patching, paving walks, drives, railway platforms and street crossings, as well as compacting granular soils and crushed rock in sub-bases, bridge approaches etc., is now available in TWIN-UNITS . . . for side-by-side or tandem operation. With either of these twin-unit hook-ups, since they are self-propelling, one operator, in most applications, can readily accomplish twice as much as with a single unit — thus speeding progress and halving labor costs. Compacting upwards of 4,000 sq. ft. per hour of bituminous mix close to maximum density is not at all uncommon. For maximum mobility and time-saving convenience an auto trailer with quick pick-up of the twin-unit and mounting a power plant of more than ample capacity, is also available. The Compactor, either single or twin-unit, can be used with great effectiveness in macadam construction for the odd work not done by the larger equipment. Get the complete facts, at once.

See your JACKSON distributor
or write directly to us.



JACKSON VIBRATORS INC. LUDINGTON, MICHIGAN

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How motor scraper rates as low-cost earthmover

■ A new Caterpillar booklet makes the point that the cost per yard of dirt moved over the entire life of a machine should be the basis for measuring economy in earthmoving. Cost per hour of production over a short period, on the other hand, is a poor yardstick for measuring a machine's ability to move dirt economically.

To be rated as a low-cost earthmover, a machine must show both a high hourly production and a low hourly operating cost. How the Caterpillar DW21 tractor and No. 21 scraper combination rates on this basis is indicated in the booklet by six contractors who reported on work done by these units.

This booklet is available in English, Spanish, French, and Portuguese.

To obtain Form No. DE514 write to Caterpillar Tractor Co., Peoria 8, Ill., or use the Request Card at page 18. Circle No. 756.

IF IT'S A

WET JOB

PLAY SAFE! ASK FOR A DEWATERING ANALYSIS BY

GRIFFIN
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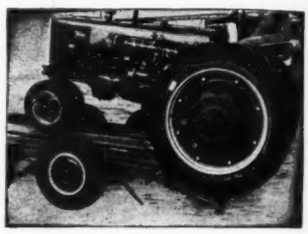
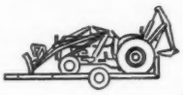
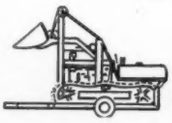




QUICKER LOADING FASTER and SAFER HAULING



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With Haulette you can quickly and safely haul equipment out in the field for contract work, picking up tractors for service using a light pickup truck.

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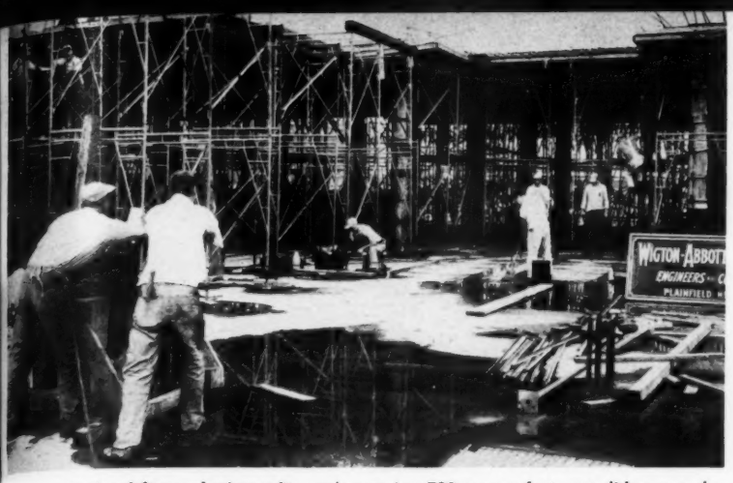

Sectional frame shoring units, each covering 720 square feet, are slid on wooden sills for successive concrete pours on the 189 x 231-foot warehouse being built for Monsanto Chemical Co., Kearney, N. J. The 50-foot-wide Trouble Saver units are lowered only 2 inches for the sliding operation.

Keeping an island afloat may seem too big a job for this International TD-24, but the crawler is doing just that as it spreads fill between piers on Terminal Island, Calif. Pumping by oil wells caused the island to sink a foot a year for the past 20 years, and the current work is being done to raise the ground level.

Wheeling bridge ceremony to honor engineering

The contributions of engineering to the United States, and of John A. Roebling to bridge building, will be marked by a memorial ceremony at Wheeling suspension bridge in Wheeling, W. Va., as soon as repairs to the 100-year-old bridge are completed. The span, redesigned and built in its present form by Roebling, will be provided with a memorial in the form of a large bronze tablet by the John A. Roebling's Sons Corp., Trenton, N. J.

Prominent engineers representing the Wheeling Chapter of the West Virginia Society of Professional Engineers are currently drawing up plans for the ceremony. R. S. Carnahan, and M. D. Ayres, both of the Wheeling Steel Corp.; Paul J. McCullough, Cadiz Water and Sewage Department; Albert Neroni, John A. Roebling's Sons Corp.; and Otis Bledsoe, Hanna Coal Co. are serving on the working committee.

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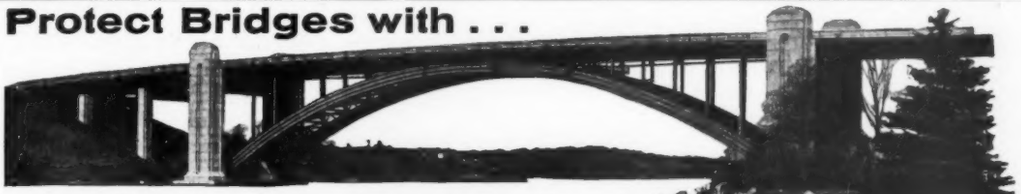

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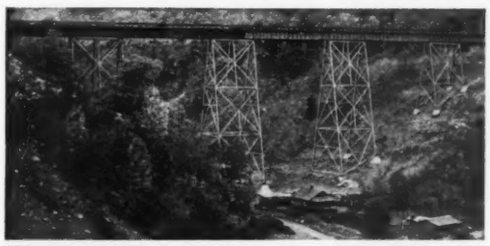

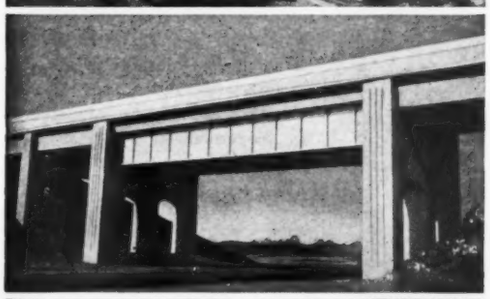

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FABREEKA PADS on bridges distribute loadings evenly and compensate for irregularities of bearing surfaces. They also prevent chipping and flaking of concrete and grout, seal out moisture and dirt, reduce transmission of impact shock, and very substantially cut the labor cost of erection. Bridge building contractors find them more economical and convenient to install. Furnished cut to size with bolt holes as specified, Fabreeka Pads are simply dropped over the anchor bolts; require no painting, and are not affected by weather conditions. They are made of a scientifically designed and manufactured material, have exceptionally high damping qualities, and remain permanently resilient under all service conditions.

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For the Mounting of Heavy Machinery to Protect Foundations and Equipment

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CONSTRUCTION CAMERA

Asphaltic concrete for resurfacing a 15-mile stretch of U. S. 30, the Lincoln Highway in central Nebraska, is turned out in this 4,000-pound Cedarapids hot-mix plant by Missouri Valley Construction Co., Omaha. Aggregates are being fed into the receiving hopper by crane and clamshell.

Shoulders on the new Jefferson Parish—New Orleans 9-mile-road link are shaped by a Caterpillar No. 12 motor grader after the asphaltic concrete surface had been put down. T. L. James & Co., Inc., Kenner, La., is the contractor this section of divided highway.

Now...for less money

Put more cost-cutting, portable electric power on your jobs!

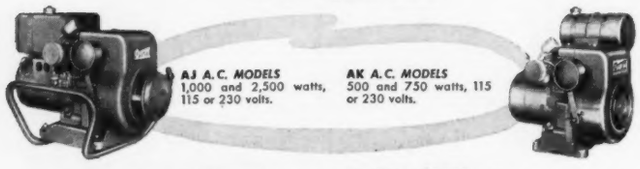
That power-packed Onan Model 205AJ on the construction site above, delivers 2,500 watts of A.C. power, enough to operate several electrical tools or floodlights simultaneously. Powered by an Onan 4-cycle gasoline engine, it has all the 4-cycle advantages of quick starting, long life and easy maintenance, *yet it weighs only 154 pounds*, and costs less per watt of output than any electric plant in its size range.

This model and others in the new AJ and AK series, ranging in size from 500 to 2,500 watts, are all lighter in weight, more compact, and lower in cost than previous models. *They are completely Onan built* . . . powered by new, modern, short-stroke, single-cylinder Onan gasoline engines, direct-connected to Onan drip-proof all-climate generators.

Equipped with carrying frame or two-wheel, rubber tired dolly, these new electric plants can be taken anywhere . . . moved around easily on the job. Get all the facts on these new electric plants from your Onan distributor.

NEW POWER-PACKED MODELS

500 to 2,500 watts



AJ A.C. MODELS 1,000 and 2,500 watts, 115 or 230 volts.

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Portfolio lists aluminum items and applications

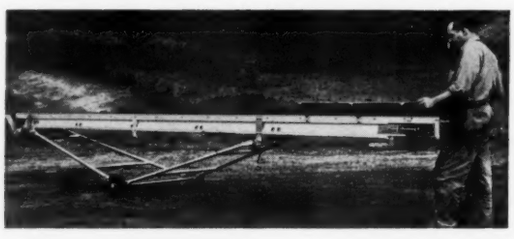
The 1955 edition of "Reynolds Architectural Aluminum Portfolio" contains 99 pages of data on the variety of applications of aluminum in architectural work. It lists sizes, weights, alloys, tempers of items, and other pertinent information about items carried by Reynolds Metals Co. in warehouse stocks at more than 25 points throughout the nation.

An alphabetical index at the front of the book gives page references for all items, such as angles, bars, channels, and base moldings. A second index lists all the extruded aluminum sections by die number for handy cross reference. In this index, red numbers are used to indicate warehouse items.

The various portions of the book are printed on different-colored paper to make use of the book easy. The warehouse section, printed on white paper, contains detail drawings showing the recommended method of applying the parts involved. Information on standard packing is also included in this section.

The non-warehouse section, printed on yellow pages, shows items available without a die charge. The first 41 pages are devoted to miscellaneous extruded shapes and the next 30 pages cover structurals, such as I-beams, H-beams, angles, channels, and bar in rounds, half-rounds, hexagons, octagons, and rectangles. This section also shows manufacturing size limitations for extruded shapes.

The book is ring bound to lie flat when opened, and has an aluminum-foil cover. Copies may be secured by architects, builders, engineers, and others in the construction industry who request the "Reynolds Architectural Aluminum Portfolio" on their company letterheads. Address requests for the volume to Reynolds Metals Co., 2500 S. Third St., Louisville 1, Ky.



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Use the Request Cards Between Pages 18 & 19 To Obtain Further Information or Printed Matter on Any Product Advertised or Described Editorially in This Issue

Good will and practical training are combined in the grading job being done by this Austin-Western 99H motor grader at the site of the International Shoe Exposition at Pirmasens, Germany. Since the $401,000 fair budget did not cover the work, a U. S. Army Corps of Engineers heavy-equipment company took on the job gratis to assist the city. On another part of the site a LeTourneau Carryall scraper, pulled by a Tournatractor over a fill area, provides adequate compaction for the site, which will have two permanent concrete exhibition halls with 10,000 square yards of floor space. *U. S. Army Photos*

Bituminous concrete tables for producing good mixes

Bituminous concrete tables expressing the composition of a mix in terms of per cent by weight of the completed mixture, including fine aggregate, coarse aggregate, and bitumen, have been published in a pocket-sized booklet, "NSA Bituminous Concrete Tables," which the National Slag Association is distributing without charge.

According to the association, the use of the mixtures detailed in the tables will, under normal conditions and the average grading of the aggregate within specification limits, produce a product in which aggregate is adequately coated with bitumen. The mixes, properly placed, make a skid-resistant, durable, and satisfactory road surface. The booklet explains the use of the tables, plant procedure, aggregate preparation, and similar points. The tables, based on field experience and laboratory investigations, were developed and approved for circulation by the technical committee of the National Slag Association. Highway engineers, bituminous contractors, asphalt paving technologists, and others concerned with the preparation of bituminous mixtures can obtain the booklet by writing the National Slag Association, 613 Perpetual Building, Washington 4, D. C.

Prof. Gustave Magnel dies; was leader in prestressing

The inventor of the Belgian system of prestressed concrete construction, 65-year-old Gustave Magnel, died of a heart attack at Ghent, Belgium.

Prof. Magnel, who used his prestressing system on bridges in a number of countries, including the Walnut Lane Bridge in Philadelphia, Pa., was a civil engineering graduate of the University of Ghent, and had served there as a professor.

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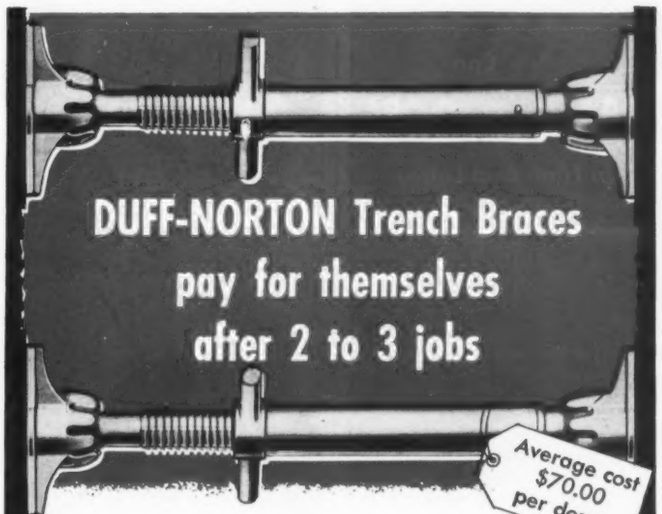

When you stop to figure what it costs to improvise makeshift materials like old two-by-fours and the like for shoring up the sides of trenches . . . . and then compare these costs with the cost of quickly and easily installing Duff-Norton extensible steel trench braces—you'll discover what many contractors have discovered—that after 2 to 3 jobs the Duff-Norton Trench Braces have paid for themselves, which means each additional job is just so much gravy. Get the complete story on types, sizes, and deliveries from your local distributor or write the world's oldest and largest manufacturer of lifting jacks for bulletin AD17-S, Duff-Norton Company, P.O. Box 1889, Pittsburgh 30, Pennsylvania. Canadian plant —Toronto 6, Ontario.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 865

FACTS ON FINANCE

by WILLIAM HURD HILLYER

Sums available for investment in municipal and other securities that finance heavy construction work may be curtailed more than a little by mortgage warehousing, which has grown to an estimated $2 billion. Among the more important such arrangements was one made recently when Institutional Securities Corp., which is jointly owned by New York State Savings banks, was granted a $250 million credit line by Chase Manhattan bank.

This "warehousing" arrangement will enable savings banks to furnish funds for residential development throughout the country before such funds are on hand in the banks themselves. They will be able to do this by borrowing money from Chase Manhattan. Then, part of the money taken in by the savings institutions will be ear-marked for repayment to Chase Manhattan.

What is actually happening is that institutions like savings banks, and the great insurance company which last winter went into debt to make residential loans, are mortgaging their own investing power for the term of the arrangement. Congress, influenced by pressure for opening capital sources for dwelling-house financing, has passed a law permitting national banks to make 20-year loans largely for residential building. Institutional investors have already turned to the banks for money. Currently restrictions are being removed so that banks can take care of more home loans on their own account. Though mortgage warehousing is being opposed by the Federal Reserve Bank of New York for the time being, the practice is growing and making for intense competition between users of capital funds.

The competition among borrowers, which officials say is "eating up the supply of credit" is making money tighter in general, sufficiently tight to make five big finance companies bid ⅛ per cent more for funds they borrow. Individual consumers, running up a debt at the rate of a billion dollars monthly, have $32 billion in borrowed money outstanding. Major New York City banks have increased the borrowing rate to 3¼ per cent—the highest in 22 years. The Federal Reserve Board has also raised its rediscount rate, so that member banks will have to pay ¼ to ½ per cent more on money borrowed. Dealers in "commercial paper"—the short-time notes of big concerns, have raised their rates six times in the last few months and their current interest is

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EASY
No special skill is required in the hammer-blow operation of this perfect wire rope cutting tool.

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The cut is clean, smooth, without jagged ends; the wire rope is easy to thread or splice.

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Ten Seconds, or less, is the usual time required to complete the smooth, clean cut.

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FLAME-GUARD
the torch with the SQUARE BURNER

NEW! *Anthes* CONSTRUCTION TORCH

Anthes — long famous for truck highway safety equipment including oil flares — now offers you FLAME-GUARD — a new self-righting torch with an exclusive square-type burner. This unique burner with umbrella style hood stays lit under most adverse weather conditions. Simple cam-type coupling allows easy removal of burner for filling, yet locks securely in place. Heavy 20-gauge steel, leakproof construction. Strong chain for easier, safer carrying. Capacity of 88 ounces with a burning time of 24 to 48 hours. Red baked enamel body and aluminum baked enamel burner. Write for complete details and prices.

Anthes FORCE OILER CO.
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For more facts, use Reader-Reply Card opposite page 18 and circle No. 868

at a 2⅝ per cent rate.

One of the signs of scarcer money is the sluggish sales of state and municipal bonds. After a spurt of strength at the end of July, when $106 million in bonds remained unsold, the market showed $121 million in unsold bonds the first week in August. Then too, weakness in the demand for U. S. government bonds is depressing municipals. But the bond market is still favored by the fact that fewer new issues are slated for sale.

Continued exemption of local government securities from the federal income tax, recommended in the almost unanimous report of President Eisenhower's advisory committee on inter-governmental relations, should have a favorable effect in augmenting funds available for construction, since it would continue to make money obtainable at cheaper interest rates. And more money should be available for construction purposes if commercial banks are permitted by statute to "underwrite" and deal in so-called "revenue" bonds, including turnpike issues.

Toll roads, incidentally, are proving a good investment, according to recent reported earnings. As of June, the New York Thruway took in more than $1,124,000 on its 396 miles of road now open, as compared with $963,000 in May. Commercial revenue, up 15 per cent, is still increasing. And the New Jersey Turnpike Authority reports a take of almost $10 million on its 118-mile stretch during the first six months of 1955. This is a 5¾ per cent gain over the first half of 1954. Revenues on this road were helped along quite a bit by the 16 per cent increase in truck traffic.

THE END

William A. Weidemeyer joins staff of Teco

Developing typical designs of timber structures for use by architects, engineers, and others engaged in designing wood structures will be the initial work undertaken by William A. Weidemeyer, who has joined the engineering and research staff of Timber Engineering Co. The company is a research affiliate of the National Lumber Manufacturers Association.

A civil engineering graduate of George Washington University, Mr. Weidemeyer received the annual award of the American Society of Civil Engineers in 1953 for his undergraduate paper on prestressed concrete.

INVEST IN

U. S. DEFENSE BONDS

NOW EVEN BETTER

Road-building firm acquired by MC&S

Two New England-based construction firms, both active in road building and a wide range of heavy construction and marine work, have been acquired by Merritt-Chapman & Scott Corp., New York, N. Y. The firms, Savin Construction Corp., East Hartford, Conn., and its subsidiary, the Whaling City Dredge & Dock Corp., Groton, Conn., will operate as part of MC&S' Construction Division, which engages in various types of construction.

The Savin Construction Corp. was founded in 1928 and the Whaling City Dredge & Dock Corp. in 1944 by A. I. Savin. Mr. Savin will continue as president and treasurer of both companies. The Savin Construction Corp. is currently working on sections of the Maine Turnpike Extension, the New Jersey Turnpike, the Binghamton, N. Y. expressway, and a New York State highway at Syracuse. Both this firm and the construction division of MC&S have been closely associated since 1950 as joint-venture contractors on several projects. At present, both are working on Folsom Dam at Folsom, Calif., and Gorge High Dam at Newhalem, Wash.

PREFERRED by CONTRACTORS

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MARVEL CONCRETE VIBRATORS

1½ HP to 5 HP

GV-1, GV-2 & GV-3 MODELS NOW EQUIPPED WITH AUTOMATIC CENTRIFUGAL CLUTCH AS STANDARD EQUIPMENT INTERCHANGEABLE FLEXIBLE SHAFTS

Write for full information

MARVEL EQUIPMENT CORPORATION

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For more facts, circle No. 870

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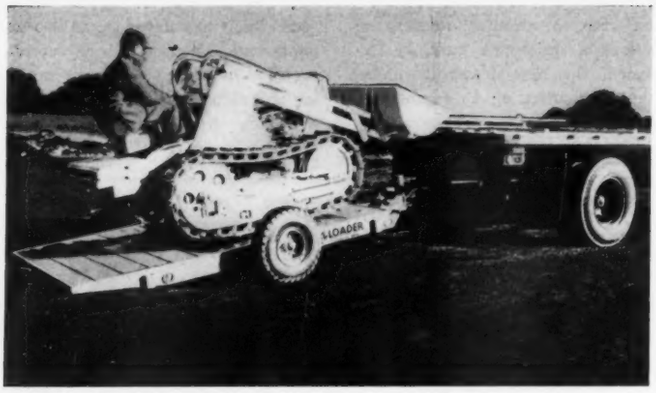
Sinclair JET LUBRICANT won't thin out at high temperatures. It maintains lubrication at frigid temperatures. This superior product stays put on heavy exposed gears and circle tracks. It resists wash-out, throw-out and drip.

JET LUBRICANT saves money, too, because it lasts longer... reduces lubricant consumption... helps to lower power consumption. No heating is required to make it usable direct from its container.

There are *more* reasons why the right grade of JET LUBRICANT and other Sinclair products can improve your operations. Why not let a Sinclair Lubrication Engineer help solve *your* lubrication problem. *There's no obligation.* Contact your local Sinclair office or write Sinclair Refining Company, Technical Service Division, 600 Fifth Avenue, New York 20, N.Y.

SINCLAIR JET LUBRICANT

For more facts, use Reader-Reply Card opposite page 18 and circle No. 821



The bed of this E-Z Loader trailer lowers hydraulically so that equipment to be hauled may be driven on. Available in both single and tandem-axle models, the welded-steel trailer is offered in 5,000 to 20,000-pound capacities. Platforms are 6 feet wide and 10 to 14 feet in length. For details circle 737 on card at page 18, or write to E-Z Loader, Inc., 2037 W. 14th St., Cleveland, Ohio.

After four motor grader passes, the Domor road widener leaves a trench cut to finish grade. Note that while the pavement has been scoured clean, no surplus material has been removed. Width of cut can be varied from 1 to 6 feet and depth from 9 to 12 inches. For details circle 733 on card at page 18, or write to Ulrich Products Corp., Roanoke, Ill.

Bulk cement conveyors

■ Fuller-Kinyon equipment for handling bulk portland cement on major construction projects is discussed and illustrated in detail in a catalog published by the Fuller Co., Catasauqua, Pa. The booklet includes photographs, cutaway drawings, and diagrams of the equipment in operation.

Operations described include unloading cement from hopper-bottom cars and trucks and conveying it to storage with the Fuller-Kinyon stationary pump; conveying cement to barges; unloading cement and conveying it to silo and mixing plant; conveying cement from a warehouse with the Fuller-Kinyon remote-control unloader; and long-distance conveying with Fuller-Kinyon systems. Specifications and a complete description of each type of equipment are included.

The booklet also treats economical and maintenance factors as they apply to this type of bulk cement conveying equipment.

To obtain Bulletin FK-20C write to the company, or use the Request Card that is bound in at page 18. Circle No. 678.

Catalog on form devices

■ The Universal Form Clamp Co.'s line of concrete form ties, reinforcing and dowel bar supports, and other concrete accessories is illustrated in a 28-page catalog available from the company. Tables giving specifications and assistance in designing forms are included.

Full information is given on Spiroloc heavy-duty form ties, which the manufacturer claims will handle working loads of from 6,750 pounds for a ⅜-inch rod to 29,000 pounds for ⅝-inch rod; various types of Universal snap ties, form clamps, and hangers; and such accessories as high chairs, reinforcing-bar supports, and dowel-bar supports. Uni-Form panels for quick on-the-job assembly also are described.

To obtain the catalog write to Universal Form Clamp Co., 1238–56 N. Kostner Ave., Chicago 51, Ill., or use the Request Card at page 18. Circle No. 728.

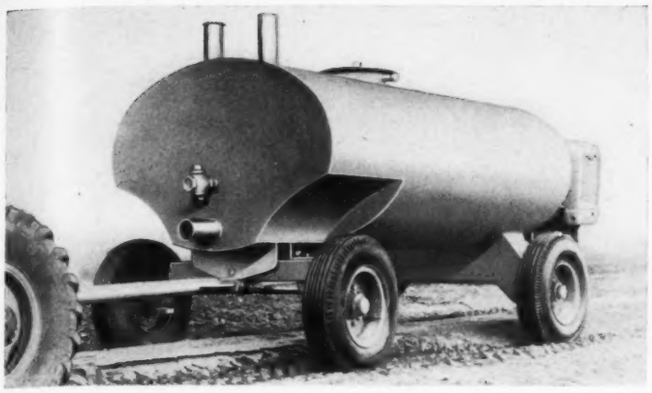
Tractor-wise Owners and Operators ...in New International

"IT CAN SELF-LOAD AND DELIVER FASTEST"—"International TD-18A improvements like the new 300% stronger track frames and cartridge-type track roller seals increase production, machine life, and operating ease. As for power, our new TD-18A can self-load the 8-11 cubic yard scraper and deliver fastest of any crawler we ever had." *Here's proof extra traction matches the TD-18A's power increase!* G. W. Owen, Warden, Henry County Public Works, McDonough, Georgia.

"EVERY LOAD'S A PAYLOAD"—"My International-Drott TD-18A Skid-Shovel is built for the operator's comfort. I know, because I'm the operator. It has 360° visibility which no other loader has. Every load is a payload." *No other outfit built gives you the TD-18A's combination of power, visibility and responsive controls. No wonder TD-18A handling ease turns "skinners" into high-producing operators throughout the day!* V. S. Steffes, Owner, Batavia, Illinois.

"OPERATORS FIGHT FOR NEW TD-18A"—"The TD-18A's were always good—fast, trouble-free performance and low operating cost made me money. The new TD-18A is stronger and really planned for the man in the seat. It has operators fighting for it." *Big, wide, comfortable cushions; hydraulic steering control boosters, and levers are conveniently grouped on the roomy, non-skid deck!* M. B. McKee, Chickasha, Oklahoma.

"LESS FATIGUE TO STRIP MORE COAL"—"There are two outstanding reasons why I like my new design International TD-18A. First it's designed to strip rugged terrain. And second, the operator can do more with less fatigue. The extended tracks enable working steep terrain with maximum production and safety." *Tough jobs, like coal-stripping, prove the TD-18A excels in ample new gear train strength, too!* Elmer Phillips, General Manager, Little Beaver Mining Corporation, Beckley, West Virginia.

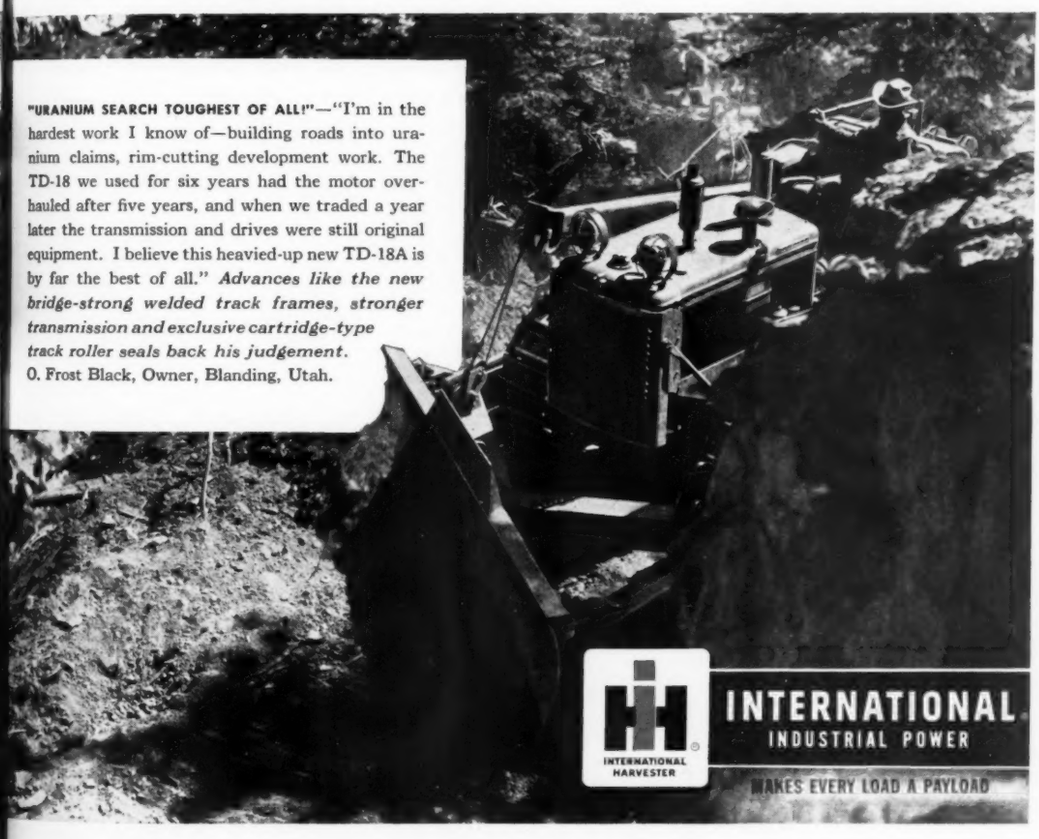


Trailing Pettibone Wood Roadmixers or other traveling mixing plants, this portable supply tank makes it possible to transfer emulsions and other binder fluid from the supply tank without interrupting mixer operation. For details circle 734 on card at page 18, or write to Pettibone Wood Mfg. Co., 6900 Tujunga Ave., North Hollywood, Calif.

A Model HA Payloader, smallest unit in the Hough line with a 16-cubic-foot-heaped rating, works 11 stories high on the roof of a mid-Manhattan building. The structure is being rebuilt around its old steel framework. Largest of the Payloaders is the new 2-cubic-yard Model HO. For details circle 736 on card at page 18, or write to Frank G. Hough Co., Libertyville, Ill.

Report on the Decisive Difference

TD-18A Performance



"URANIUM SEARCH TOUGHEST OF ALL!"—"I'm in the hardest work I know of—building roads into uranium claims, rim-cutting development work. The TD-18 we used for six years had the motor overhauled after five years, and when we traded a year later the transmission and drives were still original equipment. I believe this heavied-up new TD-18A is by far the best of all." *Advances like the new bridge-strong welded track frames, stronger transmission and exclusive cartridge-type track roller seals back his judgement.* O. Frost Black, Owner, Blanding, Utah.

Ease into foam-rubber-padded, panoramic-vision seat and see the *decisive difference*. Try new finger-tip power steering, and other big *job-easing incentives* for boosting production, as developed only by International. Prove TD-18A *full-power traction*—note, too, how the gear train is beefed-up to transmit 103 drawbar hp, and then some! Measure what new *300% stronger track frames* mean for *full-capacity performance* under slam-bang conditions. Compare how new *cartridge-type track roller seals*, and other International *downtime-prevention engineering*, beat anything else on tracks. Ask your nearby International Industrial Power distributor for a new TD-18A demonstration.

For more facts, use Reader-Reply Card opposite page 18 and circle No. 872

Hydraulic trencher mounts on wheel tractor

■ A hydraulic trencher that mounts on J. I. Case Model VAI tractors is illustrated in a folder from Be-Ge Mfg. Co., Gilroy, Calif. Fast and manueverable, the Hydraspeed trencher will dig up to 12 feet of trench per minute.

Digging speed and depth of the Be-Ge machine are instantly controlled hydraulically by levers at the operators fingertips. The equipment also includes a backfiller blade that is raised and lowered hydraulically.

A special feature of this trenching equipment is the Hydratrans positive-displacement fluid motor. This motor regulates the digging speed of the trencher through direct chain drive to the rear tractor wheels.

Specifications list a digging depth of 5 feet. Digging width ranges from 12 to 16 inches and 18 to 24 inches, depending on the bucket size used.

To obtain this literature, write to the company, or use the Request Card at page 18. Circle No. 642.

Small trailer designed for hauling tractors

■ A small trailer on which a tractor, shovel-loader, or equipment of similar size may be loaded under its own power and hauled away is illustrated in a folder from Fayette Mfg. Co., Fayette, Ohio.

The Haulette is available in four-wheel-tandem models with capacities of 8,500, 10,000, and 13,000 pounds and in single-axle models with 5,000 and 7,000-pound capacities.

The literature shows engineering dimensions and typical applications.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 670.

Reed Roller division promotes G. O. Logan

Glenn O. Logan has been promoted to division manager of the Atlanta sales division of Cleco Division of Reed Roller Bit Co., Houston, Texas. Mr. Logan has been with the company since 1948, as a special salesman in the Atlanta area.

New faster methods for erecting Butler pre-engineered buildings utilize the Ingersoll-Rand Impactool to run nuts tight and fast. Here, a size 8U Impactool bolts reinforcing plates to the ridge of roof beams which are then assembled to columns to make end-frame sections. For details circle 731 on card at page 18, or write to Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.

Large cable-dump trailers, economical over long distances, have been successfully adapted for short-haul work by special batch gates that divide the load. This Hobbs-Schonrock modified 12-yard unit can meet rigid specifications set up with dump trucks in mind. For details circle 732 on card at page 18, or write to Hobbs Mfg. Co., 609-623 N. Main St., Fort Worth 1, Texas.

"A CARLOAD EVERY 11 MINUTES WITH OUR ERIE STRAYER BUCKET"

REPORTS DEWEY SLOOP . . . SUPERINTENDENT FORREST PLANT, HOLLIDAY SAND & GRAVEL CO.

Eleven minutes to load a 100,000-pound gondola with sand—less than an hour to fill a 215-ton hopper bucket—that's production! Just 34 seconds per bucket load!

Sand and gravel men must have this swift, efficient production to turn a fair profit. And it's this kind of production the Forrest Plant of the Holliday Sand and Gravel Co. gets day after day with their 1½ yard ERIE rehandler.

ERIE buckets are made for speed. This and the other fine ERIE features cause men like Superintendent Dewey Sloop to volunteer: "The ERIE is the best bucket we've ever had."

Check ERIE's features—then compare prices!

1. **SPEED:** Faster operation from short, powerful closing and opening action.
2. **DURABILITY:** Rigid, one-piece head shrugs off bumps and jars.
3. **LOW HEAD ROOM:** Permits higher stock piling—less frequent repositioning.
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ERIE — BUCKETS THE WORLD OVER

FOR CATALOGS, WRITE DEPT. CE 95
CABLE ADDRESS: EXIMPORT

ERIE STRAYER CO.
2888 GRIST ROAD • ERIE, PENNSYLVANIA

For more facts, use Reader-Reply Card opposite page 18 and circle No. 873

Paving line includes bituminous distributors

■ The complete line of road equipment manufactured by Standard Steel Works, North Kansas City, Mo., is illustrated in literature available on request. The Standard line includes pressure distributors, maintenance distributors, supply tanks, asphalt tools, tar kettles, construction brooms, and street flushers.

The S-J distributor illustrated, available in either trailer or truck-mounted models, has a full-circulating spraybar up to 10 feet long.

The Standard Steel tar kettles shown are trailer mounted so that they may be used for patching in several locations in a single day. The kettles are designed to heat the entire mass of material uniformly.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 643.

Socketless fittings, hose described in bulletin

■ A bulletin giving details on its line of socketless fittings and hose is available from the Aeroquip Corp., 300 S. East Ave., Jackson, Mich. The equipment is recommended for use on a wide range of automotive machinery, including much heavy construction equipment.

The literature points out that Aeroquip socketless fittings and hose may be used to replace both ready-made hose lines and rigid tubing. The manufacturer cites as the particular advantage of the product the fact that the socketless hose lines may be assembled quickly and easily.

Also described is an Aeroquip kit containing a complete hose line inventory.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 677.

STEEL SCAFFOLDS
SWING SCAFFOLDS
WORK PLATFORMS
HOIST TOWERS
MAINTENANCE TRESTLES
ALL-PURPOSE SCAFFOLDS
SHORING EQUIPMENT
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TUBULAR STEEL SCAFFOLDING
for every "off-the-floor" job!
Contractors in more and more trades are making Bil-Jax their headquarters for all scaffolding equipment needs! Simplicity, sturdiness, safety and low cost are standout features. For scaffolding that's "just right" for your kind of job, insist on Bil-Jax.
GET THE FACTS!
Tell us your scaffolding problem and we'll send catalog of the equipment best suited to your needs.
SALES AND RENTAL OUTLETS IN PRINCIPAL CITIES
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BIL-JAX, INC. • ARCHBOLD • OHIO
SCAFFOLDING • TRESTLES • HOIST TOWERS • STAGES

For more facts, use Reader-Reply Card opposite page 18 and circle No. 874

At this point in a recent test of a 45 x 5-foot Rockwin roof slab designed for a live load of 26 pounds per square foot the loading is 90 pounds. Even subsequent loading to 122.5 pounds with deflection reaching 18 inches did not completely destroy the slab. For details circle 738 on card at page 18, or write to Rockwin Prestressed Concrete Corp., Norwalk, Calif.

Roadgrader Gauge units and moldboard extensions convert any motor grader into a fine-grader in less than one hour. This Caterpillar unit is fine-grading a 25-foot-wide lane, 16 to 18 inches deep at a USAF base. The gages keep the blade from cutting too deep. For details circle 735 on card at page 18, or write to Roadgrader Gauge Corp., D and Green Sts., Wilmington, Del.

New passenger conveyor stresses speed and safety

Through the method of transporting people over short distances by some type of conveyor system is not entirely new, the Otis Elevator Co., New York, N. Y., has given it a new twist by using proven components of the escalator in its new Trav-O-Lator. Looking very much like a modern escalator that rides along a horizontal or inclined plane instead of ascending to an upper level, the Trav-O-Lator has been designed to facilitate passenger movement over areas too great for walking and too short for other transportation.

Flexibility, speed, and safety were the main concern of Otis in designing the Trav-O-Lator. The unit, which does not need to be protected from the weather, can be installed to follow the contour of any passageway and can be quickly reversed to handle passenger flows from either direction. It can travel horizontally or on an incline, and can be built with gradients of as much as 14 degrees.

Speeds of 90 to 125 feet per minute, commonly used in passenger-carrying systems today, are outdistanced by the new unit, which is capable of running at any speed up to 180 feet per minute—a comfortable walking speed.

Safety features developed by Otis through the years have been incorporated into the Trav-O-Lator. Approaching the unit at normal walking speed, persons will be able to grasp a rubber handrail — which moves at the same rate as the traveling section—to accustom themselves to the speed of the Trav-O-Lator before stepping onto the moving platform.

Combs which mesh with the tread ribs of the platform are located at both ends of the Trav-O-Lator to help define the start and end of the moving platform and to make sure passengers will be transferred safely.

SAVE TIME, MONEY, LABOR WITH THESE STURDY PUMPS

★Just turn the high pressure hose on that heavy equipment for a quick clean-up. The solid, hard, driving, high pressure stream from a Hardie Powered Pump Unit will strip off the caked mud, grease, dirt—even that "behind the ears"—in a matter of seconds.

★The Hardie Spray Gun is readily adjustable by a pressure of the fingers from solid stream to a high pressure spray for over-all washing, or a fog like mist for fragile things and fog fire fighting.

★Hardie builds powered pump units in many sizes and models. Enclosed units from 5 gpm at 300 psi to 24 gpm at 400 psi. On casters or skid mounted units up to 60 gpm at 800 psi. Handle all liquids, chemicals, semi-liquid materials. All Hardie pumps are trouble-free, rugged, vertical piston-type pumps that work to their ratings smoothly, quietly, at slow speed.

Enclosed unit. All working parts are readily accessible.

Model LA—Delivers 50 gpm at 800 psi.

Model XAVA—Delivers 18 gpm at 600 psi.

WRITE FOR COMPLETE SPECIFICATION DATA

HARDIE DEPENDABLE EQUIPMENT • SOLD AND SERVICED ALL OVER THE WORLD

The Hardie Manufacturing Co., Hudson, Mich.
2538 Santa Fe Ave., Los Angeles 58, Calif.
1435 N. W. Northrup St., Portland 9, Ore.
Export Dept., Book Tower, Detroit 26, Mich.

Please send Pump Catalog.

Name _____

Address _____

City _____ State _____

For more facts, use Reader-Reply Card opposite page 18 and circle No. 875

To help you hole-thru faster...

COMMERCIAL liner plates speed up mining in soft ground tunneling

Working many feet underground in the heading of a soft ground tunnel, this crew is unconcerned about the possible danger which could result from a cave-in. By installing the COMMERCIAL steel liner plate system of ground support, the contractor of this job is providing the best safety insurance for his men as well as assurance for himself that his job can be completed on schedule.

When you realize that the COMMERCIAL plates have continuous inward flanges with all four corners solid, it is easy to understand why they are so strong and will support such heavy loads. No one wants to take a chance of loosing a heading because of inadequate ground support. A lost heading, like a lost week-end, costs money and takes time to recover from.

Look how close to pay line these "sand hogs" mine. Just a few more spadefuls of dirt need to be removed before one of them will slap the next plate into place while the other will slip seven bolts thru matching holes in the flanges and quickly tighten up the nuts with a rachet. Bolt in one hand, nut in the other, two inside vertical flanges between with matching holes—everything out in the open—what could be quicker or more simple?

As all flange joints are butt to butt and plates are curved to the exact required radius, there's no over-mining beyond pay line to cause voids behind the plates. Thus ground ravelling is minimized and reduction of the amount of grouting behind the steel lining, if any, becomes a very substantial cost-saving item.

Our experience, from many years work with engineers and contractors who have successfully used the COMMERCIAL liner plate system in hundreds of different soft ground tunnels, can be a great help to give you the footage and safety needed to complete your tunnel on schedule. There will be no obligation.

"COMMERCIAL" PRODUCTS PREFERRED BY CUSTOMER ACCEPTANCE

THE COMMERCIAL SHEARING AND STAMPING COMPANY
Youngstown, Ohio · Chicago, Illinois · Salt Lake City, Utah

4A-12

For more facts, use Reader-Reply Card opposite page 18 and circle No. 876

Tractor-shovel line boasts 2½-yard model

■ The most rugged and advanced construction of any tractor-shovel now manufactured is claimed for the new Speedall line announced by Pettibone Mulliken Corp., 4700 W. Division St., Chicago, Ill.

Featuring an extra-heavy-duty power train including power-shift transmission, torque converter, and four-wheel-drive planetary axles, the line includes a giant 2½-cubic-yard model, said to be the largest tractor-shovel produced. In addition, 1¼ and 1¾-yard models are available. The line supplements Pettibone's standard four-wheel-drive Speedall unit with torque converter.

According to the manufacturer, the new Speedall has been designed for maximum power efficiency, longer life, minimum maintenance, and simple inexpensive repair. Emphasis has been placed on construction of the power-shift transmission, which is cased in steel instead of cast iron and has ball bearings throughout.

The clutch pedal has been eliminated, and two levers on the steering column hydraulically shift the tractor-shovel four speeds forward or four speeds reverse. The transmission incorporates a 30 per cent faster reversing speed than forwad motion—an exclusive feature as compared to conventional power-shift units. A primary advantage of this type of system is said to be the reduction of clutch wear by as much as one-half in a majority of operations.

Large, double-acting boom rams give close control and excellent digging ability. The Speedall bucket is designed for a 30-degree tilt-up from ground position, a desirable angle for maximum loading capacity. In addition, an automatic device levels the bucket. High discharge height and long reach characterize each machine.

Each Speedall model is offered with either a gasoline or diesel engine, and the availability of the GM diesel engine with Allison torque converter as a power unit is a feature stressed by the company. All models have power steering and four-wheel Hydrovac booster brakes. Accessories include a snow bucket, lift fork, crane hook, V and one-way snowplows, and a bulldozer blade.

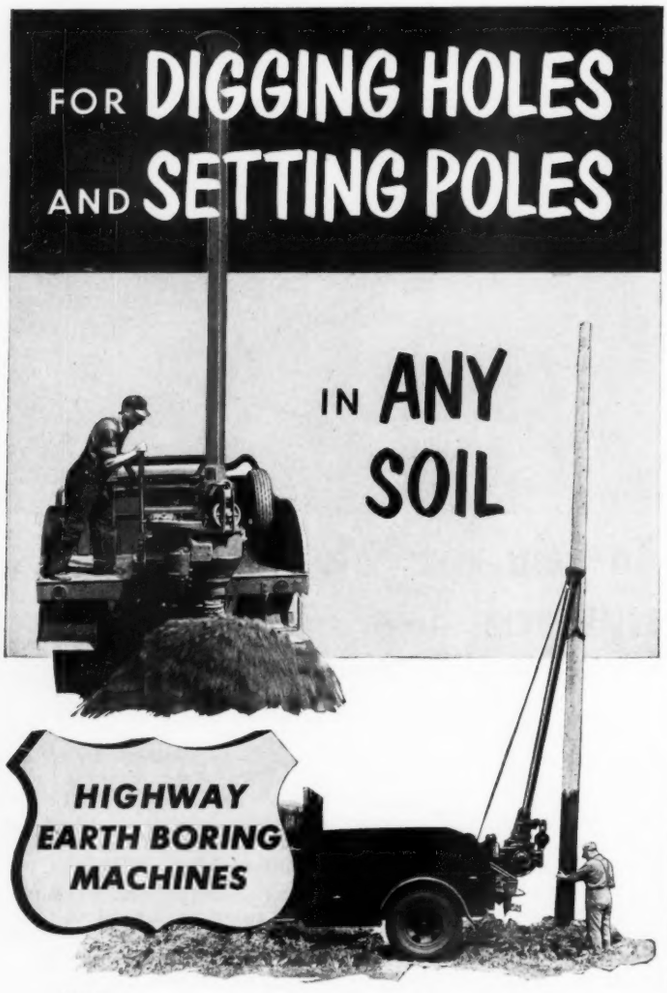
For further information write to the company, or use the Request Card at page 18. Circle No. 717.

The new Pettibone Mulliken Speedall line of tractor-shovels includes a 2½-cubic-yard model, said to be the largest tractor-shovel yet built.

Diesel Energy appointment

R. D. Friedlander, the new general sales manager of the Diesel Energy Corp., New York, N. Y., is in charge of U. S. sales for all products of Kloeckner-Humboldt-Deutz A. G., Cologne, Germany, which are imported by Diesel Energy. He will also be responsible for the distributor organization handling the equipment.

FOR DIGGING HOLES AND SETTING POLES IN ANY SOIL



HIGHWAY EARTH BORING MACHINES

Whether it's in clay, shale, or frozen ground . . . the Highway Earth Boring Machine is rugged enough to dig holes 9" to 20" in diameter, 7' to 10' deep in any soil except solid rock.

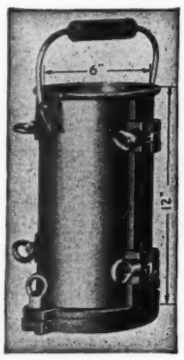
Light enough to mount on a 1½-ton truck, these boring machines need only 6' of platform space. Quickly adjusted to dig at any angle. Include an integral winch and pole derrick that will set 40- to 45-foot poles, weighing 2,000 to 2,500 pounds. Can be mounted on either truck or tractor.

See your Highway representative for details or call or write for complete information and specifications.

HIGHWAY TRAILERS

HIGHWAY TRAILER COMPANY
HEADQUARTERS: EDGERTON, WISCONSIN
MANUFACTURERS OF:
Public Utility Bodies • Earth Boring Machines • Pole and Cable Reel Trailers • Winches • Power Take-Offs • Service Accessories

For more facts, use Reader-Reply Card opposite page 18 and circle No. 877



To obtain specimens which show full strength compression tests, use MOLINE

CONCRETE TEST CYLINDER MOLDS

You can produce accurate test specimens to exact measurements with Moline Molds. They meet all ASTM requirements and are virtually indestructible—because they are made of refined malleable iron. Portable for laboratory or field work. Various sizes available including standard 6" x 12" Model A (illustrated). REMEMBER— A TEST IS ONLY AS GOOD AS THE SPECIMEN.

MOLINE IRON WORKS
Moline, Ill., U.S.A.
75 Years of Service
For more facts, circle No. 878

Neo-Flasher CAPTURES NATION!

The Neo-Flasher Barricade Unit can be rented for the operating cost of one kerosene torch or lantern.

Night photo illustrates "on the job" traffic control for Charles Burch & Sons, Los Angeles, California.

When you rent Neo-Flasher Barricades, you will eliminate all worries about theft or vandalism, no torches to light, no weather problem, no messy kerosene to handle, no barricades to build, no capital investment, no week-end premium labor, no storage problem, and of course — no fire hazard.

Neo-Flasher Model 0-100
Bolted to Barricade

The Neo-Flasher Barricade is all metal, 42½" long x 44" high x 34" leg span, mounts a steel panel - 13" x 40" - reflectorized with Scotchlite on galvanized pipe legs. Steel housing protects dual-headed Neo-Flasher light against damage, and concentric Fresnel lens throws brilliant wide beam. Tamper-proof switch, and is secured to barricade without use of lock. Completely weatherproof, and easy to service.

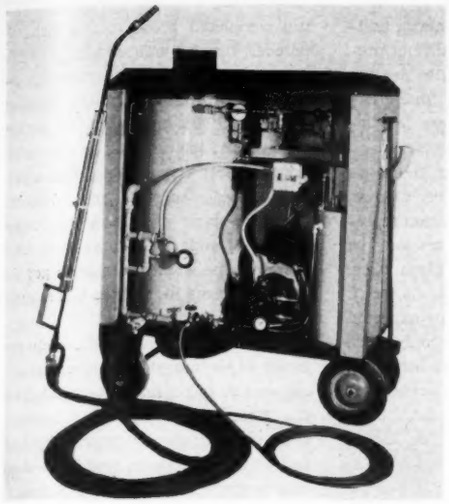
Neo-Flasher offers a complete NATION-WIDE RENTAL SERVICE
consult your yellow book in the following principal cities:

Amarillo	Long Island, N.Y.	Rochester
Baltimore	Hartford	Sacramento
Buffalo	Houston	San Antonio
Cincinnati	Los Angeles	San Diego
Chicago	Oklahoma City	San Francisco
Dallas	New Orleans	Salt Lake City
Denver	Phoenix	Seattle
Fort Worth	Portland, Ore.	Tulsa, Okla.

and other principal cities or write to:

Neo-Flasher
MANUFACTURING COMPANY
3210 Valhalla Drive • Burbank, California

For more facts, circle No. 879



The Quick Steam Model QSI portable steam cleaner is a fully automatic unit capable of 120-psi working steam pressure.

Portable steam cleaner operates automatically

■ Equipment maintenance is reportedly made easier with a new portable, oil-fired, completely automatic steam cleaner, the Model QSI, introduced by the Quick Steam Division of Quick Charge, Inc. The new cleaner has full 120-psi working steam pressure, and is equipped with two electric switches controlling water and fuel pressures and consumption.

According to the manufacturer, safety features include thermostatic control, safety relief valve, and excess-fuel-deposit control. The steam coils, wound in an interlaced pancake-type design to prevent heat loss, are safety-tested to 1,500 psi.

Like other Quick Steam portable cleaners, the new Model QSI features separate compound pressure systems, as a result of which the compound does not pass through the steam coils. Cleaning solutions can be delivered at heights of 100 feet and more.

For further information write to Dept. T, Quick Steam Division, Quick Charge Inc., 10th & Missouri Sts., Oklahoma City 17, Okla., or use the Request Card at Page 18. Circle No. 695.

Tractor loader has reach and maneuverability

■ The Model LD-8 Scoopmobile, a self-powered bucket loader, is described in a leaflet from Mixermobile Manufacturers, 8027 N. E. Killingsworth, P. O. Box 7527, Portland 20, Oreg. This is a 1⅝-yard-capacity unit that features four-wheel drive and four-wheel steer.

Capable of a 25-mph road speed, the LD-8 turns in a radius of 12 feet. Features of the unit are the long bucket boom controlled by twin hoist cylinders and the elevated cab which allows the operator good visibility.

Mixermobile's Pow-R-Flex steering keeps full power on all four wheels in any degree of turn or oscillation.

To obtain form No. 11055 write to the company, or use the Request Card at page 18. Circle No. 635.

Brochure on steel framing for parking structures

Pictures and descriptions of steel-framed parking structures, and a brief technical section designed as an aid in the planning of parking decks, is contained in a 24-page brochure, "Parking in the Air with Structural Steel," issued by the American Institute of Steel Construction, Inc.

The booklet emphasizes the low first cost, speed of erection, and reusability of steel-framed parking decks. The technical section treats such problems as live load, ramps, stalls and aisles, structural dimensions, and drainage. Copies of the brochure may be obtained without charge by writing the American Institute of Steel Construction, Inc., 101 Park Ave., New York 17, N. Y.

Harnischfeger Homes, Inc., formed as new subsidiary

Harnischfeger Homes, Inc., has been organized as a wholly-owned subsidiary of Harnischfeger Corp., Milwaukee, Wis., to separate the prefabricated homes business from the company's industrial and construction machinery divisions. Builders Acceptance Co., formed in 1950 to assist local builders in financing construction of P&H Homes, continues as a separate subsidiary of Harnischfeger Corp.

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Full Power

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For more facts, circle No. 880

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For more facts, circle No. 869

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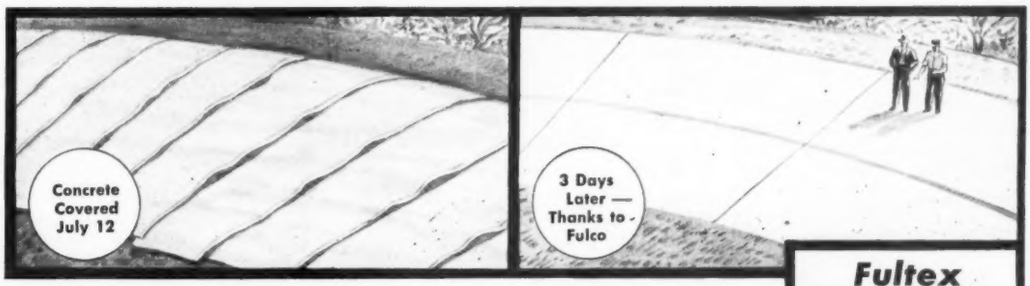
with FULCO Concrete Curing Mats



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For more facts, use Reader-Reply Card opposite page 18 and circle No. 881

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See page 127

WEATHER CHARTS

The weather outlook for October

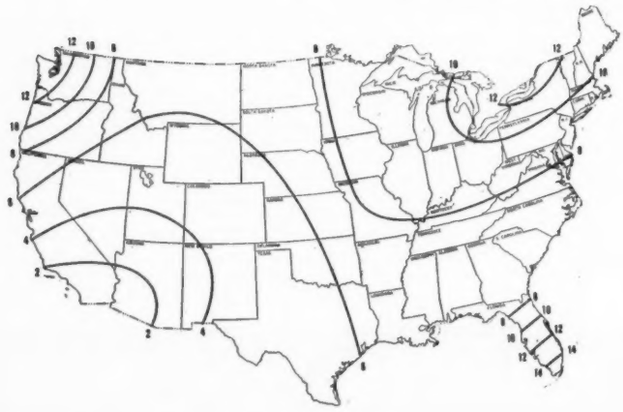

Chart 1. Days with .01 inch or more of precipitation.

Chart 2. Days with 1 inch or more of precipitation.

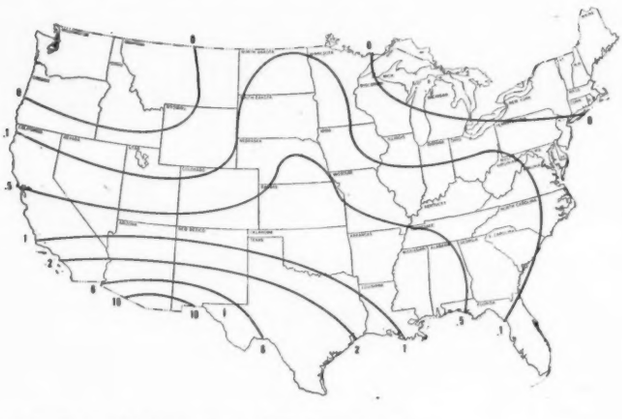

Chart 3. Days with temperatures of 90 degrees or more.

Chart 4. Days with thunderstorms.

The accompanying four maps, indicating the average occurrence of precipitation, temperatures of 90 degrees or higher, and thunderstorms, chart the average weather picture for October over the entire country.

Numbered black lines on the maps indicate the average number of days on which the weather condition represented by the specific chart may be expected to occur in a given area. Decimal values, such as .5, .25, or .1, mean the condition may be expected to occur on the average only once every 2, 4, or 10 years, in the areas through which these lines are drawn.

If a contractor in Detroit, Mich., knows that a job will require 23 full working days, and his contract specifies that the project must be started and completed within the month of October, Chart 1 will tell him that he can expect only 20 work days—including Saturdays and Sundays—during the month. This means that, in order to finish the job on time, he will have to work seven days a week plus overtime in order to fulfill his contract. Even this plan gives him no better than 50-50 odds of finishing the work; therefore, he would be wise to get as much overtime in early in the month as possible.

The data contained in these charts is not to be interpreted as representing specific forecasts. It is compiled by the Weather Corporation of America from weather station records for the last 60 or more years, and represents only average weather for October.

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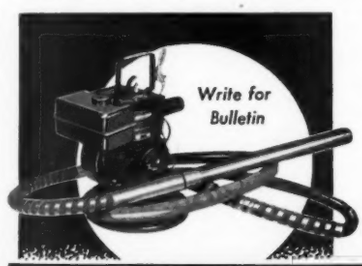

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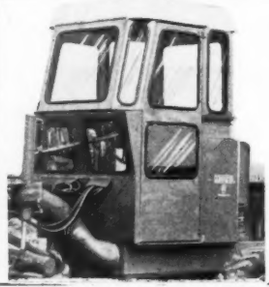

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LINDENWOOD, ILLINOIS

For more facts, circle No. 885

Curb and gutter paver eliminates hand operations

■ A self-powered curb and gutter paver is described in literature from Dotmar Industries, Inc., 502 Hanselman Building, Kalamazoo, Mich. The Dotmar machine paves up to 5 linear feet per minute, eliminating some of the time-consuming operations of conventional hand methods. There is no need to set face forms, and division plates can be eliminated. The machine rides over standard steel forms such as those used by city street departments and paving contractors.

Rails, which fit over steel forms and on which the machine rides, are furnished with the pavers. These rails are removed and placed ahead of the machine as it moves forward.

Self-propelled, the Dotmar paver is powered by a four-cycle, 3.3-hp gasoline engine.

To obtain Bulletin 53, write to the company, or use the Request Card at page 18. Circle No. 634.

Data on wire reinforcing

■ A new design manual covering use of welded wire fabric in reinforced-concrete building construction has been prepared by Wire Reinforcement Institute, Inc.

Liberally illustrated with current construction pictures and diagrams, the manual contains comprehensive design data and recommendations on many applications of fabric in concrete, such as short-span construction, cinder-concrete floors and roofs, tilt-up construction, and gunned concrete. Other topics in the manual cover the fireproofing of structural steel, lightweight structural concrete, shrinkage and temperature reinforcement, and concrete slabs on the ground.

To obtain this literature write to the Wire Reinforcement Institute, Dept. 50, 1049 National Press Bldg., Washington 4, D. C., or use the Request Card that is bound in at page 18. Circle No. 713.

Data on reinforcing bars

■ The use and reported advantages of Webrib concrete-reinforcing bars are set forth in a bulletin published by Webrib Steel Corp., 120 Broadway, New York 5, N. Y.

The literature claims that 2 tons of Webrib dumbbell-shaped reinforcing bars will do the work of 3 tons of ordinary steel reinforcing bars. This saving on steel is said to result from the fact that Webrib bars are made by a cold-twisting process which assures a minimum yield strength of 60,000 psi. Close deformations in the bar's structure, and its dumbbell shape, are said to provide additional grip and extra-high bond strength.

A table in the bulletin lists nine sizes of Webrib bars, with cross-sectional areas ranging in size from 0.0736 to 1.042 inches. The Webrib bars are compared with ordinary reinforcing bars of comparable size.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 715.

Drop-type breaking balls

■ A folder describing the performance of cast semisteel drop-type breaking balls is available from Frederick Iron & Steel Co., Inc., Frederick, Md. A typical application is described and illustrated.

Among features emphasized is the E-Z Swing steel eye, which reportedly prevents excessive movement of the ball and keeps the cable hook in place. Special release hooks for free dropping also are available.

The folder lists both ball and pear-shaped drop balls available in 10 weights from 500 to 8,000 pounds. Other sizes are available on order.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 726.

Fiberglas safety hats

■ A brochure describing its line of lightweight safety hats and caps has been published by Willson Products, Inc., 200 Thorn St., Reading, Pa. Made of Fiberglas, Willson Super-Tough construction hats are described as featuring maximum protection and a greater degree of comfort.

Data on high-voltage, impact, penetration, flame, and water-absorption tests to which the hats have been subjected also is included.

The catalog contains a handy ordering list complete with prices.

To obtain this literature write to the company, or use the Request Card at page 18. Circle No. 682.

Dirtmoving for

Disneyland

After 20 years of dreaming and planning, Walt Disney's fabulous Disneyland is at long last a reality. Located just off the Santa Ana Freeway about 30 minutes from Los Angeles, this giant playground is expected to attract 5 million visitors yearly. Main attraction will be a castle filled with life-size Disney cartoon characters (Fantasyland). There'll also be a log fort and authentic buildings of the Old West (Frontierland). There'll be boat voyages past lifelike displays of romantic parts of the world (Adventureland) and "rocket trips" to a city of the future (Tomorrowland).

To the realization of this whole magical $10,000,000 Disney kingdom, Contractor S. A. Cummings, Compton, California, played an important part. Cummings' 5 C Tournapulls handled nearly all dirt work on the 160-acre tract . . . moving 280,000 cubic yards of sand and sandy loam in 6 months. Almost all of the yardage moved was precision work. The "C's" dug boat channels, hauled material for railroad embankments, built artificial hills and even rocket platforms. They graded a parking area for 10,000 cars, leveled building sites, dug several lakes, a castle moat, and a storm drain.

5 Tournapulls move 300 yds. hourly

In typical operation — excavating a 5-acre lake and spreading the material to build up 20′ berms for a ⅝-scale model railroad — each of the 5 Tournapulls was push-loaded with 12 pay yards of sand per load. Typical 6,600′ cycles, with most of haul up 5 to 10% grades, took 10 minutes. Output per machine per 50-minute hour averaged 60 pay yards . . . output for the fleet of 5 "C's" averaged 300 pay yards per hour.

Ralph Gastelum, Supt. for Cummings, reports, "I believe this job was ideal for Tournapulls because of the sand we had to work with, and the small places we had to maneuver in. Fills were high and narrow, and cuts, particularly the channel cuts, small and winding, which made it very difficult to load . . . yet Tournapulls did an excellent job."

Let us show you how Tournapulls can help speed your jobs, too. Call or write for details on performance . . . price . . . and delivery!

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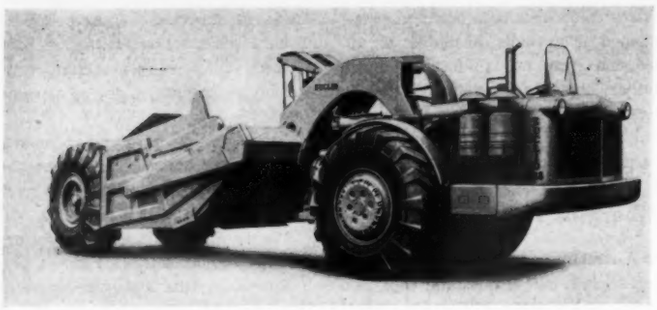
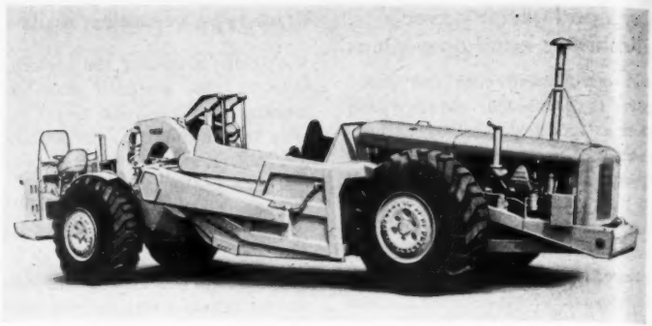
For more facts, use Reader-Reply Card opposite page 18 and circle No. 886





The new Euclid Model S-18 scraper, above, has a struck capacity of 18 yards. No push-tractor is required for loading the new Euclid twin-power Model TS-18 scraper, above at right.

Pair of 18-yard scrapers includes twin-engine model

■ Two new overhung-engine-type scrapers, each with a struck capacity of 18 cubic yards, are now being produced by the Euclid Division of General Motors Corp., 1361 Chardon Road, Cleveland 17, Ohio. Both utilize Allison Torqmatic Drive, consisting of torque converters and semi-automatic transmission.

The Model S-18 is powered by a 300-hp engine and has 27.00 × 33 tires. The twin-power Model TS-18 scraper has two 194-hp engines—one driving the tractor wheels and the other providing power to the rear wheels. Full 90-degree steer permits both models to make 180-degree turns in 35 feet or less.

With four-wheel drive and a total of 388 horsepower, the TS-18 is reported to have the power and traction required for self-loading in practically any material, and for fast travel speeds on steep grades and difficult hauls.

Torqmatic Drive has completely eliminated clutching on the two models, permitting the operator to change from one speed range to another under full power. The manufacturer claims that this drive provides a constant smooth flow of power to the drive wheels and automatically provides the power needed for varying conditions of loading, hauling, and dumping. Both of the new scrapers are equipped with no-spin differentials to provide maximum traction by directing full torque to the drive wheel with the best footing.

All operations of bowl lift, apron, and ejector on these 18-yard scrapers are independently controlled by means of hydraulic lever action—the same design and components found in other Euclid scrapers.

For further information write to the company, or use the Request Card at page 18. Circle No. 690.

Iron and steel institute elect vice presidents

W. W. Sebald and William M. Akin have been elected vice presidents of the American Iron and Steel Institute, New York, N. Y.

Mr. Sebald is president of Armco Steel Corp., Middletown, Ohio, and Mr. Akin is president of Laclede Steel Co., St. Louis, Mo.

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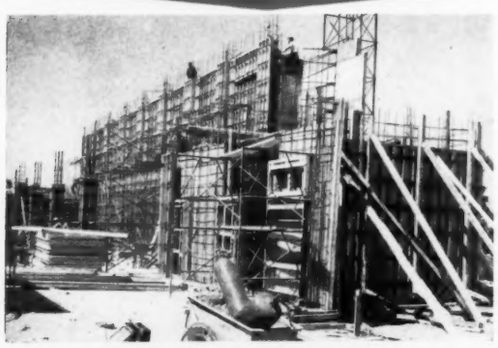

ROSS-MEAGHER LIMITED
Canadian General Contracting and Engineering firm, using Rocform Systems in constructing the huge, reinforced concrete steam power plant, Uplands, Ont. for Canadian Defense Construction Ltd.

Mr. B. M. Lock, chief estimator, ROSS-MEAGHER LIMITED, explains the company choice of ROCFORM SYSTEMS for this important Canadian Defense Project—

"Thirty-five years of building and reinforced concrete construction has taught us that modern equipment is essential to quality building at economical prices. It was immediately apparent to us that Rocform Systems have incorporated many forming features sought for many years by concrete construction men everywhere.

Rigid government specifications govern the construction of this great power plant. Rocform Systems have enabled us to erect the 50 ft. external walls, beams, columns, and reinforced coal bunkers, easier, faster, and with attendant substantial savings.

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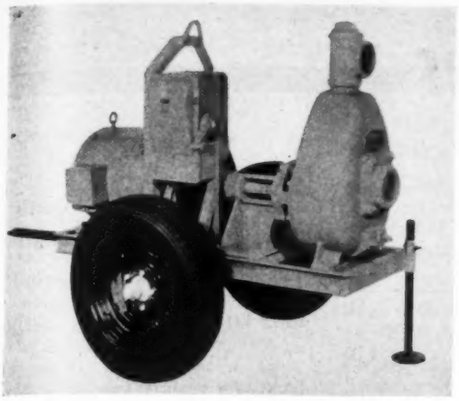
New centrifugal pump with electric-motor drive



This is a new 40,000-gph Rice pump driven by an electric motor.

■ With the addition of a new 4-inch centrifugal pump with a 20-horsepower 3-phase motor, the Rice Pump & Machine Co. of Belgium, Wis., now manufactures pumps in a hundred different models and power combinations.

The 40FC is available on pneumatic-tire wheels or on a skid mounting. On rubber tires, this model weighs 950 pounds.

The unit is equipped with a manual starter, and a magnetic-type starter is available optionally. The motor drive is through a flexible coupling to the impeller shaft. The shaft is supported in the bearing pedestal by two Timken bearings.

The 4-vane non-clogging impeller handles solids up to ½ inch in diameter. The mechanical seal used has a spring setting that maintains a slight pressure on the sealing surface to adjust the seal to compensate for wear.

For further information write to the company, or use the Request Card at page 18. Circle No. 651.

Window-wall installation by stud-welding method

■ A new folder illustrates the stud-welding method of making window-wall installations. The Nelweld method described uses the stud-welding gun manufactured by Nelson Stud Welding Div., Gregory Industries, Inc., Lorain, Ohio.

Installations shown include the fastening details on the Equitable Life Assurance Building in San Francisco, the Denver Mile High Center Office Building, the United Nations Secretariat Building, and the San Francisco Municipal Airport Building.

To obtain this literature write to the company, or use the Request Card that is bound in at page 18. Circle No. 639.

Motorists in Pennsylvania don't "detour" any more. They just take a "temporary route" when road construction or repairs are under way.

The Willard Hydromixer uses a new hydraulic system to mix 6½ cubic yards of concrete in transit.

New transit mixer uses hydraulic drum drive

■ A new hydraulic drum drive powered by a front-mounted two-speed power takeoff is featured on a 6-cubic-yard transit mixer announced by Willard Concrete Machinery Sales Co., 11700 Wright Road, Lynwood, Calif. The Willard Hydromixer, which has a 193-inch wheelbase, mixes 6½ cubic yards of concrete in transit with less than a 32,000-pound load on the rear tandem axles.

The new drum drive is said to eliminate the weight and cost of an extra engine, as well as the accompanying cost of fuel and maintenance. Charging, mixing, and discharging are easily controlled by a simple, two-way hydraulic valve, according to the manufacturer, and there is said to be no rollback or surging with this hydraulic system. A total weight of 7,100 pounds reportedly permits maximum payload and extra water capacity.

For further information write to the company, or use the Request Card that is bound in at page 18. Circle No. 697.

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PROTECT YOUR PROFIT BY REDUCING COSTS . . .

1. Spots all pipe and cable locations before uncovering, preventing damage, expensive repairs and lost time.
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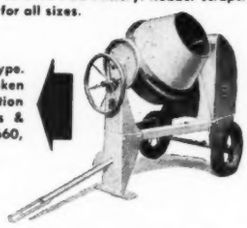
Muller's earliest objective—to make the best possible plaster and mortar mixer and sell it for the lowest possible price—was achieved by: (1) specialization on a few models . . . (2) careful selection of materials and components . . . (3) experienced workmanship . . . (4) sound distribution methods. Other Muller Machines, also, rank high in their fields for the same reasons.

PLASTER AND MORTAR MIXERS

Made in 2, 4, 6, 8 and 10 cu. ft. sizes. Electric motor or gas engine power. All models have Muller Lifetime Paddle Shaft Seal to protect bearings. Power throwouts on smaller models, built-in disc clutch on larger. Many other features. Priced $180 to $996 FOB Factory. Rubber scraper blades are available for all sizes.

CONCRETE MIXERS

3 models, 3 to 6 cu. ft. capacities, tilting type. Ample size drums, fast-mixing action, Timken Bearings, electrically welded, sturdy construction throughout. Power—electric motor or Briggs & Stratton Air Cooled Engines. Prices $230 to $660, FOB Factory.



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4 sizes—24, 29, 34 and 44" dia., Briggs & Stratton Engines. Stationary guide ring eliminates hand troweling when finishing along baseboard. Engine speed regulated by governor control on handle.

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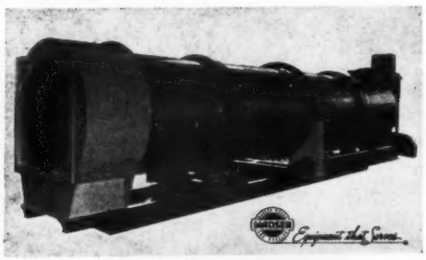
YOU GET MAXIMUM HEATING at minimum fuel costs per ton of material dried when you use MADSEN Aggregate Dryers. These outstanding dryers set the pace for high daily production and trouble-free performance. MADSEN advantages include a unique cold end cowl design with externally replaceable bottom liners. And, the interior spiral flights and lifters in MADSEN Dryers provide the logical pattern for most efficient heating. Check the MADSEN plus-values below and ask your MADSEN Distributor for the complete story.



MADSEN AGGREGATE DRYERS

PLUS VALUES ------ **YOU GET IN A MADSEN DRYER**

- Fully enclosed cast steel cut tooth gears for both dryer speed reduction and cold elevator drive.
- MADSEN-pioneered girth sprocket drive or girth gear for long-lived power application to the shell proper.
- Choice of power . . . electric motor or engine — low-pressure air-oil, steam-oil or gas fired.
- Massive tire, trunnion and bearing assemblies . . . and free-flow stack outlet and feed chute combination.

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Construction Equipment Division

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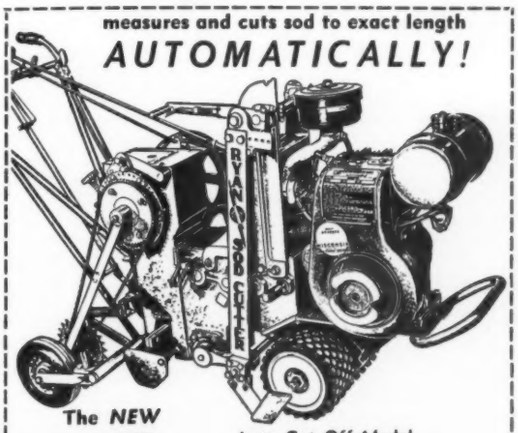
measures and cuts sod to exact length
AUTOMATICALLY!



The NEW **Ryan** Auto-Cut-Off Model **POWER SOD CUTTER**
cuts 15 sq. yds. of sod per minute
(and cross cuts in the same operation!)

Here is, beyond doubt, the finest sod cutter ever built. The new Auto-Cut-Off model completely eliminates hand cross-cutting, gives you better quality sod with precision, square-cut ends for easier laying—greater profits. Easily cuts 15 sq. yds. a minute. Available in several sizes. For complete information, write Dept. K-1.

Ryan landscaping equipment company
Quality Built
Division of RLM Machine Works, Inc.
871 Edgerton St.
St. Paul 1, Minn.

For more facts, circle No. 901

MANUFACTURER MEMOS

Executive promotion made by U. S. Steel

Griswold A. Price last month succeeded Herbert J. Watt as assistant vice president of sales in the western area for the U. S. Steel Corp., New York, N. Y. Mr. Watt retired after 43 years service as a sales executive in the steel industry.

Mr. Price started with the U. S. Steel Corp. as a student in the Gary Steel Works after being graduated from Northwestern University. A year later he was transferred to the Chicago office, and then became a salesman in the Chicago Bar, Strip and Semi-finished Materials Division. Later, he was made assistant manager of sales in the St. Louis district sales office.

He returned to Chicago as assistant general manager of sales of the Bar, Strip and Semi-finished Materials Division in 1935, and then became manager of sales for the division in Pittsburgh on the formation of the Carnegie-Illinois Steel Corp. In 1939 he was appointed manager of sales of the Chicago district sales office, and in 1947 he became manager of the office.

Heltzel and subsidiary have new chief engineer

The job of directing the engineering staffs of the Heltzel Steel Form & Iron Co., and its wholly owned subsidiary, the Flexible Road Joint Machine Co., has been given to C. F. Mittelstadt, the new chief engineer for both concerns.

The Heltzel firm, which manufactures paving forms, batching plants, and handling systems for concrete and rock, and the Flexible Road Joint firm, which builds Flex-Plane finishing machines, spray curing machines, and automatic joint and dowel-installing equipment, are both located in Warren, Ohio.

C. F. Mittelstadt, chief engineer for the Heltzel Steel Form & Iron Co. and the Flexible Road Joint Machine Co.

Mr. Mittelstadt is a graduate of the California Institute of Technology and most recently was employed by Erie Strayer Co. as consulting engineer. Prior to that, he was with the Blaw-Knox Equipment Division, and served as chief engineer for such concerns as the George L. Lucas Engineering Co., Los Angeles, Calif., and the George S. May Co., and the Wolf Management Engineering Co., both of Chicago, Ill.

Textron American, Inc., buys Homelite Corp.

Textron American, Inc., Providence, R. I., has purchased the Homelite Corp., Port Chester, N. Y., maker of chain saws, generators, blowers, pumps, and other equipment used by the construction industry. The Homelite firm will now be operated as an independent subsidiary of Textron, Inc., and there will be no changes in management, personnel, or policy.

Homelite, established in 1927 was a pioneer in the design and manufacture of lightweight two-cycle gasoline-driven equipment for the construction field. The company's first model Homelite chain saw was introduced to the industry in the fall of 1949. New equipment scheduled for introduction in the near future includes a lightweight low-cost generator, a diaphragm pump and several new chain saws.

Key positions filled by "Quick-Way" firm

Two executive positions have been filled at "Quick-Way" Truck Shovel Co., Denver, Colo., with the appointments of Kenneth O. Williamson as assistant general manager for the company and Daniel S. Heffron as director of domestic and export sales.

Mr. Williamson previously held such positions as assistant production manager and branch manager and sales manager at the Osgood Co., and, after the consolidation of Osgood-General and Marion, he was sales manager of Marion-Osgood-General.

Mr. Heffron, "Quick-Way's" sales manager for the past 12 years, set up the present distributor organization.

a good right arm for contractors
MARION 43-M
• The muscle, brawn and speed of the MARION 43-M give you a big production machine, as a 1 cubic yard shovel — as a 1 or 1¼ cubic yard dragline—as a crane with a 20 ton rating—as a 1 cubic yard backhoe—or as a pile driver with boom lengths up to 80 feet.
The 43-M travels easily on a carryall, and is readily convertible from shovel to crane work. MARION Air Control helps make it a fast worker, easily controlled without operator fatigue.
Unusual dependability results from generous use of alloy steels, forgings and anti-friction bearings. Here is machine quality throughout that is unsurpassed. Handle your contract work dependably, efficiently and economically in the years ahead with a MARION 43-M. Your nearest MARION representative can give you complete information without obligation.
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MARION POWER SHOVEL COMPANY
MARION, OHIO, U. S. A.
A Subsidiary of Merritt-Chapman & Scott Corporation
POWER SHOVELS FROM ½ TO 60 CUBIC YARDS
PILE DRIVERS • WALKING DRAGLINES
DRAGLINES • CLAMSHELLS • LOG LOADERS
CRANES, CRAWLER & RUBBER MOUNTED • BACKHOES
Your Confidence Is Justified Where This Flag Flies
For more facts, use Reader-Reply Card opposite page 18 and circle No. 902

The Koehring Co., Milwaukee, Wis., has named R. E. Burton to the post of assistant general sales manager for the company.

Assistant sales manager appointed by Koehring

R. E. Burton has taken the post of assistant general sales manager of the Koehring Co., Milwaukee, Wis., a position formerly held by M. O. Messenger, now the vice president and sales manager for the firm's Canadian subsidiary, Koehring-Waterous, Ltd., Brantford, Ontario.

Mr. Burton started work with the C. S. Johnson Co., Champaign, Ill., a subsidiary of Koehring, as a draftsman and sales engineer. He became the Koehring foreign representative to its subsidiary, Ishikawajima-Koehring, Ltd., Tokyo, Japan, in 1952.

Gar Wood manager named for Chicago sales branch

Gar Wood Industries, Inc., has promoted Leo M. Brown to manager of the Chicago direct-factory sales branch which markets special truck equipment, hydraulic hoist and dump bodies, winches, and cranes made by the Wayne, Mich., firm.

Mr. Brown, who was formerly associated with the Galion Allsteel Body Co. and the Hercules Steel Products Corp., joined Gar Wood in 1949, serving successively as sales representative, district manager, assistant sales manager, sales manager, and most recently, as assistant to the director of sales at the Wayne, Mich., plant.

Kostus joins Lippmann

Starting the first of this month, Jerome M. Kostus will represent Lippmann Engineering Works, Milwaukee, Wis., in New Jersey, the eastern section of Pennsylvania, and the southeastern portion of New York State, including New York City.

Mr. Kostus will handle the sale and promotion of Lippmann screens, crushers, conveyors, and associated quarry and pit equipment.

Hyster appointment

A newly created position, assistant to the president of Hyster Co. on special staff assignments, has been taken by Anthony A. Pack. He was formerly with Vickers, Inc. Before that, he served as a project engineer for General Motors Corp.

Hyster, located in Portland, Oreg., makes material handling trucks and tractor-mounted job attachments.

H. Kleinhans represents McDowell in Pennsylvania

H. Kleinhans Co., Pittsburgh, Pa., is a new sales representative in the Pittsburgh area for all the enterprises combined under McDowell Co., Inc.—Dwight-Lloyd Division, Wellman Engineering Co., and the Williams Bucket, Locomotive Crane, and Anker-Holth divisions of Wellman.

The Kleinhans Co. represented Wellman, manufacturer of steel plant machinery and bulk material handling systems for a number of years before its acquisition by McDowell Co., Cleveland, Ohio.

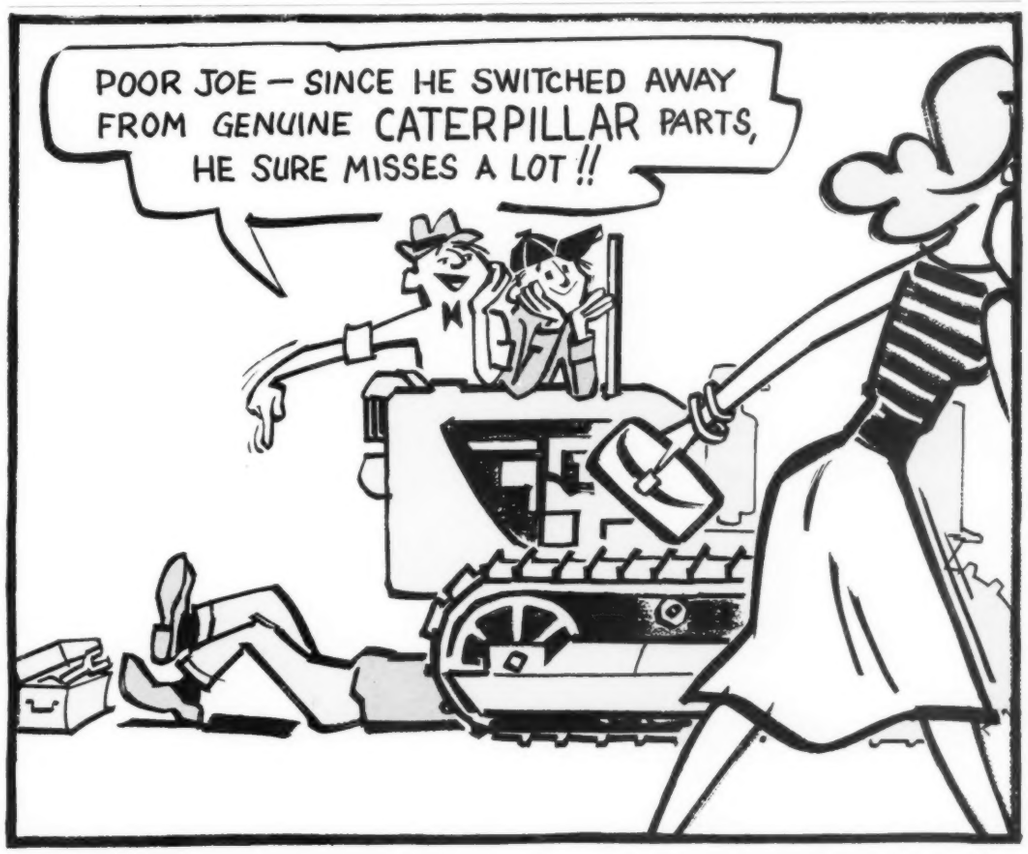
The company has a branch office in Buffalo, which will represent McDowell in the western third of Pennsylvania.

Frank C. Edwards, newly elected vice president of Harnischfeger's diesel division.

Vice president elected for Harnischfeger division

The board of directors of Harnischfeger Corp. has elected Frank C. Edwards vice president of the company's diesel division.

Since he started working in the company's Milwaukee, Wis., shops in 1925, Mr. Edwards has held a number of positions with Harnischfeger. He has also been affiliated with a number of the corporation's district offices, including those in Memphis, New York, Jacksonville, and Pittsburgh, and served as general manager of the firm's truck crane plant in Newark before the manufacturing operations were transferred to Escanaba, Mich. Mr. Edwards was sales manager of the P&H small excavator division when, in 1953, he was made general chairman of the diesel division in Crystal Lake, Ill.



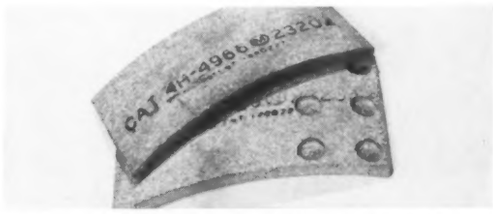
Down time is no joke. Say it happens when a clutch facing or a brake lining wears out.

If you replace with a Caterpillar-built part, here's what you're sure of: a friction part that's made of a material with high torque capacity but low friction loss, a long-wearing material that *really* resists glazing and chipping, a tough material that's been through rugged tests in the laboratory, on the proving ground, and out on actual jobs. In short, you're sure of *less* down time in the future.

If you replace with a substitute part—can you be sure of anything?

Better get genuine Caterpillar parts every time.

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.



These are genuine CAT* brake linings. They're made of a specially designed molded asbestos material. You can't buy better anywhere.

CATERPILLAR*

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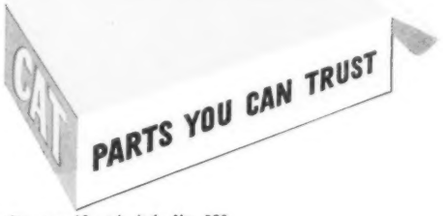

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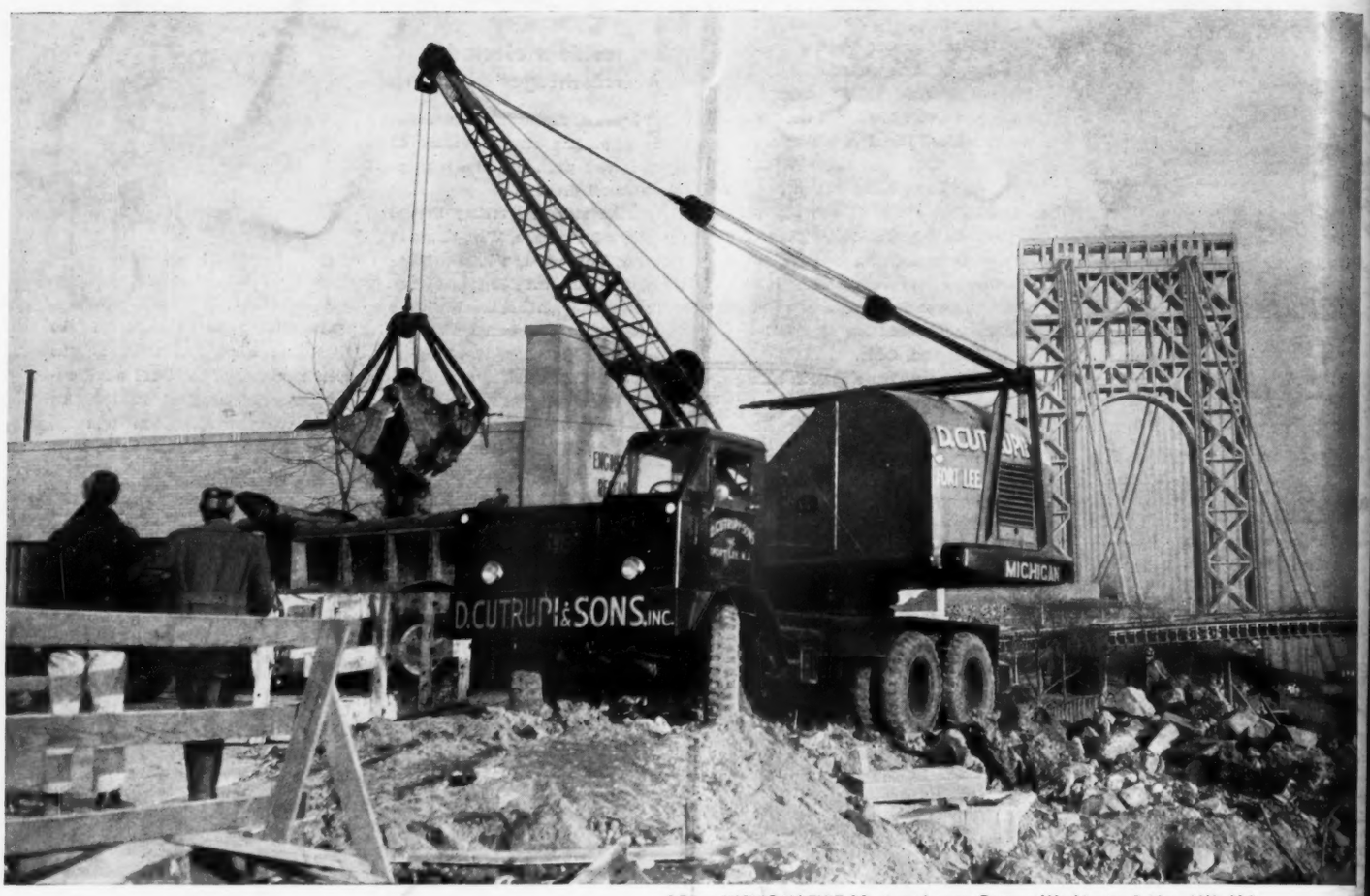
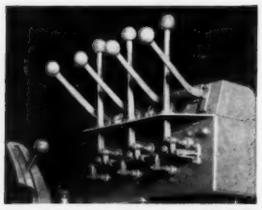


15-ton MICHIGAN TLDT-20 at work near George Washington Bridge, N.Y., N.J.

Air controls mean more profits . . . with this MICHIGAN 15-ton truck crane



It's faster: AIR CONTROL

For smooth swing, for perfect "feel" of the load, MICHIGAN air control has no equal. It cuts operator fatigue.

It's smoother: DISC CLUTCH

For positive action — smooth, and as fast or slow as you want — the MICHIGAN air-controlled clutch is ideal. Self-ventilating, self-cleaning — and interchangeable segments make easy servicing.

A few years ago, only heavy off-the-highway trucks had power-steering. Today, power-steering is practically standard equipment on all passenger cars. Similarly in the excavator-crane field: almost all big machines (1 yard and up) have long been power-controlled. But of ten leading ½-yard machines on the market today, *only three have power-controlled clutches.*

Now consider this: Air-controlled clutches have always been standard on all Michigan® excavator-cranes. Easier to operate and easier to maintain than old-fashioned mechanical levers and linkages, Michigan air controls give you faster production with less maintenance. In short, more profitable operation.

The Michigan TLDT-20—½-yard 15-ton truck crane—features air controls as standard equipment, along with other "big machine" features: 6 adjustable hook rollers, integral-cast turntable deck and sides frames, heavy-duty 404 cubic inch truck engine. The TLDT-20 is described in detail in Bulletin 1600A; write for it and make your own comparison. Or ask your own Michigan distributor to show you, on-the-job, how the TLDT-20 can boost your profits.

ALL Michigan equipment is available on a low-cost, no down-payment Lease Plan; write for 4-page folder which explains how it works, how much it costs, etc.

CLARK EQUIPMENT

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For more facts, use Reader-Reply Card opposite page 18 and circle No. 904